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THE CARE OF CHILDREN'S TEETH

THE MOST NEGLECTED FEATURE OF PEDIATRIC MEDICINE *

THOMAS C. McCLEAVE, M.D.
OAKLAND, CALIF.

Modern medicine concerns itself very largely with the prevention of disease and deformity, and nowhere is there wider or more effective application of the principles of preventive practice than in childhood. Only in this period of life can developmental defects be successfully dealt with, and during this time occurs the greatest incidence of those diseases and infectious conditions which so largely determine the disabilities and deformities of later life.

Tuberculosis, it is now generally recognized, is essentially, at least in its inception, a disease of early life. Measles, scarlet fever, diphtheria and poliomyelitis, and adenoid, tonsil and dental infections, to which may be ascribed so many of the cardiovascular, renal, articular, nervous and other disorders of later years, all occur chiefly in childhood, and methods of control, if they are to avail anything, must be applied then.

Preventive medicine, then, it may fairly be said, is of prime importance to the pediatrician. Prophylactic measures not instituted in childhood are, in the majority of cases, too late.

In many respects the problems of preventive medicine in childhood are well formulated and intelligently appreciated, though in most localities the machinery to cope with them is still inadequate.

The problem of the care of the teeth, however, remains very generally neglected. Several of our larger cities have splendid systems of dental clinics, and more or less dental inspection is carried on in the schools of even many of the smaller communities; but in most places nothing is being done. Indifference to the subject pervades both the medical and dental professions. Many members of the latter, indeed, seem wofully ignorant of the importance of the conservation of children's teeth, and so commonly do dentists refuse to accept children as patients that there is often great difficulty in having necessary work done. It has been my frequent experience, in trying to save the deciduous premolars or even the first permanent molar, to have dentists decline to undertake the work on the ground that it was not worth while. Doubtless most children are difficult and trying dental patients, and perhaps few dentists possess the tact, patience, sympathy and insight into child nature essential to him who would successfully deal with them; but I believe that ignorance is the chief obstacle. "The deciduous teeth are only intended to last a few years anyway and then be replaced, and what matters it if through early decay they are prematurely lost? Fillings to preserve them would fall out in a short time and have to be done over, so why bother with them? The permanent teeth will be crooked, of course, but then, they might be so anyway, and they can be straightened later if desired." Thus the voice of ignorance, and it doubtless salves many a conscience that should feel guilty.

For the purpose of our discussion we may consider the teeth in relation to developmental, nutritional and infectious disorders associated with them.

The most important developmental defects involve the bones of the jaws and face primarily, and are manifested by disturbances of dental structure, alinement and occlusal relations commonly leading to more or less interference with the functions of mastication, respiration and speech, and alterations in the esthetic appearance of the dental arches and facial expression. This syndrome is included, by the dental profession, in the term "malocclusion." The causes of malocclusion may originate in fetal life, dating back to the period of the differentiation of the dental lamina and tooth germs, or even beyond, and the bony deformities may, in some cases, be recognized before the eruption of the teeth and may vary from complete absence of certain bones, and defects such as cleft palate, to merely insignificant changes in relationships.

In other instances, a normal deciduous dentition may be ruined by neglect or misuse. Neglect of oral hygiene leads to early caries and loss of teeth, with consequent shrinkage and abnormalities of growth of the jaws, which force the oncoming permanent teeth out of their natural positions. Similar effects may follow misuse, which implies the failure to utilize the masticatory function of the teeth, and may be caused by an improper dietary, or by bad habits, such as bolting the food, or chewing on one side, or with the front teeth only, which may cause relatively disproportionate growth of different parts of the jaws; or caries or other painful conditions of the mouth and teeth may prevent proper mastication. Nasal deformities, adenoids and hypertrophied tonsils may induce changes in the normal palatal arch and dental alinement; and certain systemic disorders, as syphilis, rickets and malnutrition may profoundly affect the development of the jaws and teeth, as may also disorders of the endocrine organs, as dyspituitarism.

A correlation between dental malformations and certain other developmental defects has also been commonly observed. Deformities of the palate and dental arches are almost invariably found in the mentally defective, while cretins quite constantly exhibit irregu-

* Chairman's address, read before the Section on Diseases of Children at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

larities and abnormalities in the position, structure, eruption and shedding of the teeth. The deciduous teeth, for instance, may be retained to adult life, coexisting with the permanent teeth.

The development relationships between the jaws and other bones of the face are strikingly shown by the marvelous development of this region which occurs in the first two years of life, more marked than in any other part of the body. It is a favorite saying that "Beauty is skin deep"; but how false this is. Beauty, as applied to human beings, ordinarily refers to the aspect of the face, and here beauty is "bone deep." No matter how fine the complexion or texture of the skin, there is no beauty in overshot jaws, receding chins and crooked teeth, or in the vacuous expression of the habitual mouth breather. As we give so much thought to our personal appearance, and as we are so much judged by our appearance, and the impressions we create are to such an extent dependent on it, how important it is, then, that parents should very early be properly advised as to the care of their children's mouths, in relation to the development of their faces.

That malocclusion of the teeth may seriously interfere with one's esthetic appearance and with mastication, and even with speech, is evident even to the laity.

Respiratory disturbances result chiefly from encroachment of the narrowed high-arched palatal structures on the nasal cavity. The nasal passages are contracted, bowing of the septum still further reduces the air-space, and adenoid and tonsillar hypertrophy are usually associated. There occur then the manifestations of mental and physical impairment related to obstruction of nasal breathing, which, because of their notoriety, need not be discussed in detail here.

Nutritional disturbances associated with abnormal buccal conditions are common. The mouth is one of the important organs of digestion. Mastication of the food is an essential prelude to the processes which are to follow, and in respect to starchy foods, a considerable proportion of the digestive process should normally occur in the mouth. That a diseased organ cannot functionate normally is axiomatic. Moreover, digestive processes not properly instituted cannot be completed without entailing on other organs demands beyond their normal capacity. Thus children with bad teeth have commonly disturbances of other digestive organs, and impaired nutrition, which is of course accentuated by the associated toxemia due to absorption of bacterial products from the mouth. The swallowing of these, also, no doubt, plays a part in the derangement of gastric and intestinal digestion.

A proper selection of the dietary in young children is of much significance in the development of sound and normal teeth; but another member of the section is to discuss this phase of the subject, and I will not trespass on his topic.

Infections of the teeth and alveolar processes afford two of the commonest diseases to which man is subject, dental caries and pyorrhea. Interest in caries dates back to early times and it has been ascribed to a great variety of etiologic factors. In Hippocrates' time, disturbance of the humors of the body was assigned as a cause. In the middle ages, the worm theory prevailed. At one time, each tooth was supposed to act as the pole in a galvanic battery and electrical action was thought to account for the dissolution of the tooth. Later on, caries was supposed to be due to the presence in the mouth of abnormal chemical bodies, white decay being attributed to nitric acid, yellow decay to hydrochloric acid, and brown decay to sulphuric acid. With a knowledge of bacteriology came the septic theory, and then the chemicobacterial theory, which is now generally accepted. This theory assumes that certain of the mouth organisms, by the production of enzymes, induce fermentative processes in the carbohydrate food materials in the mouth, with resultant formation of acids, chiefly lactic, which cause dissolution of the inorganic substances in the teeth. Destruction of the harder portions of the tooth structure exposes the pulp to infection, in which may be also involved the peridental soft tissues or even the bone. Some authors have claimed that caries is endogenous rather than exogenous in origin, but this hypothesis finds little support.

Conditions constantly present in the mouth, free exposure to bacteria, and warmth and moisture to facilitate their growth, predispose to germ activity in this region, and liability to caries is enhanced, according to the theory, in the presence of lactic acid forming organisms, by undue retention of carbohydrate materials in proximity to the teeth. This may be due to the form or arrangement of the teeth, pits or crevices in the enamel, recession of the gums, or faulty positions of the teeth in relation to each other or to soft parts, tending to increase the liability to retention of food particles. An arrested or insufficient flow of saliva may also be a factor, but this is rare except during fevers. If prolonged, caries may be greatly aggravated by it. The most important factors, however, are probably the food itself and the dietetic habits of the individual. This cannot be gone into in detail, but in general it may be said that soft foods that require little mastication, which assists in the mechanical cleansing of the teeth, or sweet sticky syrupy foods that so often constitute the last part of a meal, seem to predispose to caries. That mushes, custards, puddings, soft breadstuffs, bread and milk, potatoes, sweets, etc., form a large part of children's diets, is well known.

Dry, fibrous and acid foods, such as dry cereals, fresh vegetables and fruits, on the other hand, seem antagonistic to the development of caries. They are especially valuable, then, particularly if eaten at the close of a meal.

Dietetic habits, such as eating before retiring, or the eating of sweets at bedtime or between meals, or too frequent eating, which leaves a fresh and constantly replenished supply of carbohydrate material in the mouth, or bolting of food, may favor retention of carbohydrates and so predispose to caries.

The relative alkalinity and acidity of the saliva in relation to caries is at present a subject of great interest in the dental profession, largely induced by Pickerill's work, in which he seemed to prove that by varying the stimuli applied to the salivary glands by foods or chemicals taken in the mouth, changes may be brought about in the reaction of the saliva, it being his theory that caries is dependent on acidity of the saliva. Critical review of his methods by other investigators, however, is said to have disclosed certain fallacies, and it would now appear that a tendency to caries depends perhaps not so much on the mere acidity or alkalinity of the saliva, as such, but rather on the difference in reaction between the so-called resting saliva and the saliva activated by the taking of food or chewing. This difference is called the salivary factor.

It is well known that the reaction of a culture medium may ordinarily be altered but little without affecting the growth of organisms in it, slight changes

perhaps inhibiting entirely the growth of certain bacteria. It would seem, according to observations on which this theory is founded, that wide variations in the reaction of the resting as compared to the activated saliva favors immunity to caries, by producing conditions unsuitable for the excessive proliferation of acid-forming organisms in the mouth. The influence of foods and chemicals on the process is still unsettled.

Pyorrhea, also, has of late attained a great prominence in medical literature because of the investigations into the causative relationship of the *Endamoeba gingivalis* to this condition, which have aroused considerable interest and some controversy.

We are chiefly concerned, however, with the more general aspects of these very common infectious diseases.

Almost invariably associated with suppurative conditions in the mouth we find infections of the tonsils and other pharyngeal and nasal structures. Sinus disease, middle ear inflammations, inflammatory eye disturbances from direct extension of infection, and toxic changes in the iris, choroid, retina or optic nerve have been frequently reported.

Tubercle bacilli have been isolated from the cavities of carious teeth unassociated with apparent tuberculous disease in the individual other than cervical lymphadenitis; but dental caries so profoundly affects the subject's general nutrition as to constitute a grave predisposing factor in tuberculosis, whether or not we regard the teeth as possible direct portals of infection with the bacillus. Simple and suppurative lymphadenitis resulting from caries is a common phenomenon.

During the last several years, the subject of focal infections has occupied perhaps the foremost place in medical thought. It is unnecessary here to rehearse the many conditions included in the category of infections of buccal origin, because they are familiar to all by reason of the vast literature on focal infection. If it is true, as Billings has said, that, barring skin and venereal disorders, the largest percentage of human diseases have their origin in the mouth and nasopharyngeal area; or if all nontraumatic joint inflammations are evidence of infection elsewhere, most commonly in this same region, it would seem that the importance of my subject can hardly be exaggerated.

What is to be done about it? The problem is appalling by reason of the vastness of the personnel involved and the time required for adequate dental treatment. Every dental patient demands hours of actual work, and by whom and when and where is this to be done? Wise men, leaders of the dental profession all over the country, see the need and are striving to devise means of relief. The medical profession, largely through the impetus of the "focal infection" propaganda, realizes a new significance in decaying teeth and septic mouths. The public is being aroused to the importance of oral hygiene. Philanthropy is interested. The age incidence of many dental defects makes the problem of peculiar concern to the pediatrician. I have therefore ventured to bring the subject to your attention today in the hope of stimulating your further interest in it, and enlisting your aid in helping to promote its consideration in your several communities.

Cooperation between the dental and medical professions must be fostered. Both they and the public must be educated to the need by those who already realize it. The rank and file of the dentists must learn that they are not merely artisans and mechanics, but that they are workers in one of the great fields of medicine, in which they have to do with matters which may determine the whole future health and usefulness of the individual; and that children, instead of being avoided, are to be regarded as their most important patients, because much of their work can be effective only in children.

Parents must be made to appreciate the tremendous importance of conserving the deciduous teeth and of correcting orthodontic defects and deformities early; and those who are able to pay must be taught that the work is worth paying for, that it may be attractive to high-class scientific men and women.

Time does not permit a discussion of details of organization of the forces concerned in the problem. I want to say, however, that a children's clinic which lacks a dental department as an inherent part of its organization is defective.

Federal Realty Building.

THE PROGNOSIS IN INFANTILE PARALYSIS *

WALTER G. STERN, M.D.

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CLEVELAND

Despite the great advances in recent years in our knowledge concerning the etiology and pathology of acute myelo-encephalitis, and notwithstanding the numerous excellent papers recently published on the early treatment of this disease and its effect on the outcome of the paralysis, few diseases of such serious nature are so little understood by the medical profession at large as this one. We have been powerless to prevent the spread of epidemics; unable to make the correct diagnosis until after the advent of a frank paralysis. Treatment both prophylactic and curative has been futile, and the correct outlook as to the future progress of a given case is rarely foretold. Is there any wonder, therefore, that so many patients fall into the hands of quacks and irregular practitioners?

This at least has been the writer's experience in the recent epidemic of infantile paralysis in Ohio. He has seen many patients, improperly managed as to treatment and functional use, grow worse and lose what little muscle strength was left in the afflicted muscle groups, because of the false prognosis as to the duration and the course of the treatment and the final outcome as to function. One has only to consult the recent publications of Lovett and Buchholz to realize the possibilities for partial recovery of function and the tremendous importance of properly graduated muscle treatment and the baneful effects of overstimulation, excessive use and overexertion.

It is of vital importance that the physician in charge in the acute stage of this disease should be conversant with the true course of the recovery of muscle function. In the inability to diagnose and specifically treat the beginning stages of infantile paralysis, very little additional harm is done in the present state of our knowledge; but with a promise of a perfect cure the seed is sown for a lack of appreciation for a good

* Read before the Section on Orthopedic Surgery at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

functional recovery, for the lack of necessary endurance and patience on the part of the parents, which results in desperate attempts to force the victim into the evils of overexertion and overstimulation, with its consequent deplorable effects of loss of muscle tone, overstretching and weakening of the afflicted parts. No one feature of the misunderstanding prevalent in the medical profession today concerning this disease is so conducive of harm as is this ignorance concerning the true prognosis.

Epidemic infantile paralysis is an acute, contagious, infectious disease attended with a high mortality, the rate varying from 9 to 20 per cent. in various epidemics, and in the vast majority of cases the disease occasions permanent muscle damage of greater or lesser extent and renders the victim a "cripple." The grave character of infantile paralysis can be more readily grasped if this disease is contrasted with others concerning whose epidemic seriousness there is no doubt. In typhoid fever the morbidity and mortality are about the same, and the length of the stay in bed is not unlike; but in typhoid the convalescent patient gains rapidly in strength and well being and is soon restored to normal function. In infantile paralysis, convalescence is only the preparation for a long and tedious struggle against crippledom.

The death rate is directly comparable to the severity of the infection. The seat of the lesion also plays a most important part. The upper cervical and cerebellar types, with their paralyses of the muscles of respiration and deglutition, are responsible for the majority of deaths.

Complete recovery from the paralysis is not as frequent as some writers would note. Mark Richardson and Sever state that 25 per cent. of all their patients made a complete recovery. They also note that in half of the recovered cases the onset was mild and the return of complete function occurred rapidly, i. e., in from four to six weeks; but they further state "no one can tell at first which case is going to make such a recovery."

On the other hand, many recent writers, among them O'Reily, Howard and Schouffler, note that "complete recovery occurs but rarely and that there is rarely a case so mild that it can be absolutely cured and allowed to pass out of observation." My own experience in the Ohio epidemic of 1915 gave me only two cases, out of the seventy-eight which I saw personally or which I know of from personal communication with the attending physician, which can be said to have undergone a complete cure. One was a case of left facial paralysis in a child of 3, and the other a marked weakness of the thigh muscles in a child of 6, the attack being so light as to have been entirely overlooked by the attending physician.

When complete recovery takes place spontaneously, it is said that the climax is reached not later than six weeks from the time of onset.

Partial recovery of muscle power with a more or less satisfactory recovery of function is the universal rule. No case is so bad that there is not some opportunity for improvement, and almost all patients with paralysis of the lower extremities can be put on their feet and taught to walk. It has long been taught that, as a rule, the intensity of the paralysis is in proportion to the severity of the attack and that the mildest cases recover easiest; but this rule is not universally true and the physician must be on his guard not to be misled by the seeming insignificance of the primary paralysis, lest the afflicted muscles be allowed to overstretch and become weakened from misuse. I have in mind a case of peroneal palsy so mild that the attending physician, a pediatrist of note, suspected a coxitis on account of the limp. The consulting orthopedist ruled out coxitis, and as the child was evidently suffering from rickets, put the child on antirachitic treatment. Four months later (now in midwinter) when I saw the child again, it showed a tendency toward varus and an evident weakness of the peroneal muscles.

The prognosis for recovery in a given case depends on many factors, most of which represent unknowns, and only one being under the direct control of the physician. These are:

1. The amount of actual permanent destruction of the ganglion cells of the anterior horns, or of the brain.
2. The amount of nerve cell congestion and edema, and neuritis.
3. The regenerative and reconstructive powers of the nervous system.
4. The amount of muscle degeneration and overstretching (loss of tone).
5. The presence of bone and joint deformities.
6. The curative effect of proper treatment.

The amount of actual permanent destruction of the ganglion cells of the anterior horn depends on the severity of the attack, but there is no way of differentiating it, in the early stages, from the neighboring cell congestion and infiltration, and concomitant neuritis. Complete paralysis, loss of the reflexes and the presence of the reaction of degeneration only indicate the amount of damage, not its permanence. Quvastec and Krafft-Ebbing were always of the opinion that the severe pain complained of in so many cases was due to a neuritis (root symptoms), and that the greater the pain the more the symptoms aforementioned might be held to be due to this neuritis. It is no longer the fashion, however, to speak of neuritis in describing the pathology of this disease. Flexner has recently called attention to the universal involvement of neighboring nerve cells in the congestion and edema accompanying the ganglion cell destruction. Any paralysis due to this congestion, to edema or to neuritis is sure to be recovered from.

The early spontaneous improvement in function, the recovery of the reflexes and loss of the reaction of degeneration, are a good indication of the regeneration and reconstruction of the nervous system. A voluntary motion is a complicated process and is set into action by the activity of a large number of anterior horn cells situated in different horizontal planes; and even if a large part of these centers have been destroyed by the inflammatory process, given the proper stimulation, the nerve impulses will sooner or later seek to find a way by which they may pass around this break in the "connecting circuit," so to speak, and again innervate the damaged muscles. There is, however, no time limit beyond which this spontaneous improvement cannot take place. Six months has been arbitrarily placed as the limit for spontaneous recovery. It is told that the greater part of such recovery does take place within this time limit; but Hoppe of Cincinnati has reported a case in which improvement occurred after twelve years. If six months were really the limit for spontaneous recovery, it is equally true that a great deal of further improvement can be secured, provided the patient is placed under proper treatment.

Too much time and effort need not be wasted in securing the electrical reactions. The ordinary practitioner and ordinary hospital are absolutely unequipped to make accurate electric observations. At their best, they only indicate the nature of the change (neural) and are not an evidence of the curability or incurability of the process. An early recovery from the reaction of degeneration means, of course, an early improvement in the underlying cause of the muscle paralysis or weakness; but its continuance and the persistence of the loss of the reflexes does not mean that recovery of function cannot take place. The method of Lovett and Brown, in determining the amount of real paralysis or weakness in measures of pounds of pull, is a real advance in our methods of determining the amount of the muscle damage. But here, too, we are confronted with the problem that we are dealing in great measure with young children who are prone to struggle and cry, and in whom repeated measurements must be made before trustworthy ones can be secured, and, as in the case of the electrical reactions, it is not a method to be advised for the general practitioner or the ordinary type of general hospital.

Of serious import in the prognosis is the loss of muscle tone, overstretching of muscle and tendons, and the presence of bone or joint deformity. Robert Jones has clearly shown that overstretching can be as serious as actual persisting paralysis, and that, in many cases, ganglion cell recovery has been completely masked by the loss of muscle tone. It is therefore of vital importance that the limb be placed at once in a position of muscle balance or, where necessary, muscle unbalance in overcorrection, to favor a contracture of the paralyzed or weakened muscle groups. One of the most amazing improvements is that seen in a case of drop wrist, kept up by an overstretching of the extensors, after it is put in a Jones splint, or, at times of a flail shoulder when the arm is hyperabducted in the manner advised by Silver of Pittsburgh. Deformities, especially equinus, with contracture of the Achilles tendon, must be avoided; and it is not out of place to remind the practitioner that the removal of the bedclothes from off the toes—something which must always be practiced—will not alone accomplish this. Volkmann trough splints, with horizontal bars to prevent rotation, must be used and the feet accurately bandaged therein.

Of vital importance in the prognosis is the carrying out of the proper treatment to strengthen the weakened muscles. The first factor in this treatment is rest, complete rest to the muscles in the physiologic position of the joint (Lorenz). There has been a quiet controversy concerning the length of this absolute rest in bed. Judson at one extreme advised eighteen months, Townsend one year, while Lovett in a recent publication advocated that the children be put on their feet as soon as possible. Against the latter stand I must protest most earnestly. There is a great deal to lose and nothing to be gained by a too early resumption of walking. It is the antithesis of rest. The day walking is to be resumed by the convalescent is the beginning of a new era. It is the resumption of the pleasures and activities of life; and with its dawn the restraints of medical discipline, the precepts of the physician and the ideals of treatment are alike thrown away. The boy longs for his bat and ball, and the girl for her jumping rope and dancing, and as soon as possible the normal activities of daily life are attempted. It behooves us, therefore, before allowing such freedom, to weigh carefully the dangers of overexertion against the good of early resumption of walking. The graded massage and muscle training of the ideal method of treatment can stimulate the weakened muscles only a few minutes or possibly a few hours a day. But active exercise and walking stimulate the unparalyzed and stronger muscles for ten times as long. What wonder is it, then, if the patient soon returns with a deformity brought on by the contracture of the antagonists?

With rest in bed combined with the use of massage and the interrupted galvanic electricity to keep up the tone and the vitality of the muscle body, resistance exercises and muscle training seeking to open new avenues of nerve communication for the reestablishment of nerve control and recovery of neuromuscular strength, we accomplish most. With these methods we find the chances for the recovery of function multiplied manyfold, and cases seemingly hopeless are often restored to activity. The use of braces or other mechanical appliances and orthopedic operations should never be undertaken before a muscle survey is made in the manner advised by Lovett, for the purpose of determining what particular group of muscles and what particular muscle function must be assisted or guarded.

Whenever possible, parents must be warned lest a badly paralyzed and inactive child overeat and become helpless on account of excessive weight. At the Gates Hospital for Crippled Children, we have had in our short career of one year, two cases in which excessive adipositas was the deciding factor between the wheel chair and walking.

SUMMARY

The death rate of epidemic infantile paralysis is as high as that of any of the most serious diseases of childhood.

While a few perfect complete cures are authentically reported, the vast majority of patients make only a partial recovery of muscle power with a more or less imperfect functional result.

Spontaneous cure unassisted by treatment is at its maximum in from three to six months.

Careful treatment—physiologic rest, graded massage, stimulating electric applications, resistance exercises, muscle training, etc.—improves greatly the chances for partial recovery and lengthens indefinitely the period in which such recovery can take place.

Misuse, overwork, overstimulation, overexertion, contractures and deformities are particularly harmful and detract from the power of recovery and often destroy what little muscle power has been gained.

The prognosis should always be guarded, conservative and truthful, lest the parents, expecting too much, should in their disappointment throw away all rightful gain in strength, power and function, while seeking the chimera of a "perfect cure." With proper treatment, followed by braces, orthopedic operations and the like, almost every patient with infantile paralysis should, so to speak, "be put on his feet" and acquire independent and useful function of the afflicted member.

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ABSTRACT OF DISCUSSION

DR. HENRY W. FRAUENTHAL, New York: It is my personal experience that what these cases lack is intelligent observation. We are trying to lay down rules for general practitioners, and should teach that if a child is under intelligent observation, it will not have deformity and contracted

muscles. Regarding the matter of keeping the patient on the back for six months or a year to a year and a half, I think that if the heart is so damaged, it will do more harm, almost, than the paralysis, taking months to recover from the effect, based on the experiences of the Mayo Clinic. I start to treat my patients right after the temperature drops to normal, and sometimes before, and have seen no damage ensue. The damage, I think, all comes from neglect, from putting on a brace and saying, "Goodbye; come back again in three months." Braces are not the treatment; plaster of Paris is not the treatment; the thing to do is to try to establish the function of the muscles. If you keep the patients under observation, you do not have these terrible results, as have been described here today. It is sending them home and having some one else attend them that causes the trouble. If they have intelligent massage and electricity, under the guidance and supervision of a doctor, and later, muscle education, preferably by reflecting the image in a mirror, you get higher muscle perfection than in any other way. We are responsible for the ill results of our neglect. The treatment of these cases should not be turned over to the family physician or the parents, unless they have constant supervision by us. No brace device will keep a foot from becoming deformed, unless the brace does more damage than the disease itself.

DR. WALTER G. STERN, Cleveland: It is all very well for us to tell each other that we have our patients under continuous observation, perfect control and all of that, but do we in reality enjoy such an ideal state of affairs? This point cannot be determined by what we think our patients are doing, but only by a survey of the state of the cripple. We in Cleveland are now making such a survey. These patients go from one doctor and from one hospital or dispensary to another. Your records show that they are coming regularly to your dispensary in the afternoon, but on investigation you will find that they have been to some other dispensary in the morning and perhaps will consult the osteopath or chiropractor at night. There are very few patients with infantile paralysis who have not consulted and have not been treated by a half-dozen different physicians or agencies. If this be true, then having them under "perfect control" is impossible. The day the child wants to get up is the day that the mother gives a party and from that day on the limb is used as much as possible. We have heard much that massage should be graded and careful. This is what good treatment ought to give every case. But how careful and how graded are the attempts of the child to dance or jump the rope? By these violent exercises the patient can undo in a half hour of activity all the good effects of weeks of careful muscle training. This is why those with more experience than I, have advised that when the acute stage is over the child should be kept at rest for a comparatively long time, and while in bed given the exercises, massage and muscle training as indicated by the condition present.

Suicide and the Aged.—The statistics of suicide might throw some light on the question whether or not old people cling to life in spite of their misfortunes. According to the French statistics for 1910 (*La Semaine Médicale*, 1912, No. 41), the "frequency of suicide runs parallel with age, and the maximum is attained in the most advanced period of life." Suicide at all ages is two and a half times more common in France than it is in England, but our English figures do not support the statement that it tends to become more common as age advances. Not only do the numbers fall rapidly after 65, but they do so in greater proportion than the decrease in the number of persons living at those ages. In France the most common cause of suicide is said to be "physical suffering," which would afford a reasonable excuse for suicide in old age, but the difference between the figures in the two countries is probably dependent on temperament, the more patient Anglo-Saxon bearing the burden of age more stoically than his Celto-Iberian neighbor.—Saundby.

THE NECESSITY OF REVISING THE NOMENCLATURE OF THE ANATOMY OF THE BRAIN*

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About fifty-five years ago I commenced the study of anatomy by examining the bones by sight, then, by the sense of touch alone, endeavoring to determine to which side of the body each belonged, afterward dissecting the cadaver and learning the names of the parts without reading the text. Later drawings were made from plates found in books, as well as from the subject. In this manner a familiarity with the structure was easily acquired. The names, unusual and frequently those of persons and things without reference to the functions of the parts, required much effort to learn and were difficult to retain in the memory. This difficulty was more apparent when the study of the anatomy of the nervous system was reached, on account of the fact that little was known of the relation of the nerve centers and their connecting tracts, and consequently of their functions.

At this time the dissection of the brain consisted of slicing its substances along certain lines, learning its lobes and fissues, and its ventricles, their boundaries and contents. As for useful information, the soil was barren of practical ideas and was used mostly as a place for the registration of the names of the ancients and of those unfamiliar objects long out of use.

Later the field of knowledge was extended by the use of the microscope, experiments on animals, the tracing of tracts of degeneration, cerebral localization and the observations of the parts involved in hemorrages, tumors and other pathologic findings. Other names were added to the list, until at the present time the nomenclature is oppressive and a great hindrance to progress. As it is, the medical student turns in disgust from his futile efforts to conquer a subject which appears to him to be impractical, striving only to learn (not understand) sufficient to pass an examination and to shun the study forever after.

In the study of anatomy, as in all other branches of science, simplicity should be our aim. The use of generalization is a great help to the student. Structure and its supposed function should be considered together in giving a name to any part of the body, so that one reading the history of medicine might be able to compare the progress of one age with that of another. When found necessary, names could be changed to conform with the understanding without much confusion by writing the old names in parenthesis, similar to the change now taking place by the introduction of the decimal system of weight and measures. A gradual change effected in this manner would mark an advance in knowledge at any particular date, and the slight embarrassment suffered would be compensated for by the elimination of a senseless terminology which now oppresses the memory to the exclusion of practical ideas.

I will mention, in illustration, two of the many absurdities of the present nomenclature. The cingulum (girdle), properly named, should be called the superior internal longitudinal commissure, one of

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the four great longitudinal commissures associating the regions of the memories with the frontal lobe of the brain. This large tract arises in front from the olfactory and marginal convolutions, passes backward over the corpus callosum, then downward and forward and terminates in the hippocampal lobe. A different name is applied to each of three different parts of its course. As nearly all parts of the brain encircle the bundles of the internal capsule in the same manner, why select this particular girdle as the cingulum, when they could all be represented together in a single generalization?

Again, there are the "forceps major" and "forceps minor"; I have dissected many brains and have failed to discover them.

Multiplicity of names could be avoided and simplicity attained by the adoption of a systematic generalization of the parts of the central nervous system in connection with that of the whole body. To illustrate, roughly speaking, histologically the body is composed of several segments, modified to conform to the symmetry of the whole. Each segment is composed of all the elements contained in the others, though developments of these elements are unequal. Thus each somatic segment consists of a vertebra, a ventral, or nutritive, arch in front and a dorsal, or neural, arch behind. Superimposed, these segments form cavities, the former enclosing the viscera of nutrition, and the latter the brain and spinal cord. Displacements occur both in the parts of the body and in the viscera of any segment, and both are enervated by the nerve center corresponding to each individual segment, the knowledge of which explains many related reflexes and otherwise obscure symptoms of disease. For example, in pneumogastric irritation the somatic reflexes are manifested on the face. This is true of the central nervous system, except that displacements are limited. Each segment of the nervous system contains the same structural elements, though differently disposed, and often the dissection of one of these throws light on the anatomy of the others.

A comparison of the structure of the cerebrum and cerebellum shows that a hemisphere of each is composed of a hemisphere ganglion, corona radiata, internal capsule, basal ganglia, corpus callosum, commissures of association, ventricles and other parts, all of which are distinct and homologous. Why then should the several parts not be designated by the same names and distinguished by an affix, "cerebri" or "cerebelli," as the case might be? A dissection of the ganglia of the segments of the spinal cord displays the same elements in each. A marked difference in the arrangement is that the hemispherical ganglia of the spinal cord are enclosed by the white substance of its several tracts, which becomes everted at the lower part of the medulla oblongata, so that the relation of the gray and white matter is reversed above this locality, in order to accommodate the increase of function required of the cerebellum and cerebrum.

In the description of the anatomy of the spinal cord we are also confronted and confused by the names of the columns of Turck, Rolando, Gowers, Spitzka-Lissaur, Burdach, Goll and Clark. A much more simple and convenient method would be to divide each half of the cord into three columns, and these again into the tracts of which they are composed. Thus, the anterior column, betwen the anterior median fissure and the motor nerve roots, consists of anterior median and lateral tracts; the lateral column contains the direct cerebral, the direct cerebellar, the crossed pyrimidal and the reticulated tracts; the posterior column is made up of the posterior median and the lateral tracts (Goll and Burdach). Clark's "vesicular column" probably represents the cerebellar element of the spinal segments of the cord, and might be thus designated until a better theory of its function is advanced.

When the American Medical Association met in this city about twenty years ago, I showed in this section castings made from the dissections of the brain. I was asked by several members present of the possibility of repeating them for the purpose of teaching. After having reproduced them, it was found that they were not practical in instructing a large class of students; doubts were also expressed that the nervous tracts could be isolated and demonstrated in continuity by dissection, as exhibited in the models.

Photography, however, has dispelled all such doubts, since by the use of the stereoptic camera dissections can be exhibited as seen on the natural subject, specimens of which I am pleased to show you at this time. Lantern slides also can be made to project these pictures on a screen, not flat, but as solid objects. Other methods of instruction are available, even of greater and more permanent advantage to the student.

It affords me great pleasure to do this work, not altogether because of my personal interest in its pursuit, but as well to gratify a desire to do all that I can to assist the student, and also because of the wide scope of its utility in promoting the sciences of psychology, psychiatry, education and eventually justice. Even when we attempt to associate the knowledge acquired of the anatomy and functions of the nervous system with any one of these sciences, we are again in the presence of technical words and phrases of uncertain signification. It appears to me that the science of the mind might be reduced to a few basic principles, easily understood, and from which all the phenomena relating to mind are evolved as the result of reflex action, and that the terminology could be greatly simplified.

ABSTRACT OF DISCUSSION

DR. I. LEON MEYERS, Chicago: The nomenclature of the anatomy of the brain is in a number of instances in great need of revision, as in its present state it is now and then misleading.

The terminology of the cerebellum is obsolete and at variance with the great advances made in the embryology, morphology and physiology of the organ. In dividing the cerebellum into its various lobes, prominence is given to the monticulus—which comprises the culmen and the declive—as a division of the superior vermis. The impression is thus conveyed that the culmen is a part of a unit distinct and separate from the lobulus centralis which is situated anteriorly to it. As a matter of fact, however, the culmen belongs embryologically, morphologically and physiologically to the lobulus centralis and these two, together with the lingula, form the lobus anticus (Elliot Smith). The same is true as regards the lobus quadrangularis on the superior surface of the hemisphere. This name would imply that its two parts (the anterior crescentic and posterior crescentic lobules) constitute one unit, whereas in reality the anterior lobule belongs to the lobus anticus, and the posterior lobule to the lobus medius. The prominence given in descriptive anatomy to the sulcus horizontalis magnus—a morphologically unimportant sulcus—has been long ago deprecated by Stroud, and attention is called to this also by Cunningham in his "Text-Book of Anatomy." The name tonsil applied to an important lobule on the inferior surface of the cerebellum in man, originally given to it because it was thought to be an appendage of

the uvula, so that both were described under the term of lobus uvulae (Cunningham)—is without justification, as the tonsil is morphologically the anterior part of the alae lobuli medii, or the hemispheres. Elliot Smith has also pointed out the fallacy of dividing the suprapyramidal part of the vermis into a clivus, folium cacuminis and tuber valvulae, all these constituting one common structure. The extent to which the present terminology is misleading is shown by the confusion which resulted when experimental physiologists endeavored to apply the results of their studies on lower animals to the cerebellum of man. We thus find, for example, a man of such eminence as Dr. Rothmann of Berlin identifying the lobulus paramedianus (the tonsil or amygdalus in man) with the gyrus semilunaris inferior; the crus secundum (the lobulus biventer) with the gyrus semilunaris superior; the formatio vermicularis (the lobulus flocculi) with the lobulus biventer; and the crus primum (the lobulus semilunaris superior) with the lobus quadrangularis.

DR. WILLIAM ALEXANDER JONES, Minneapolis: Dr. Fuller's efforts to simplify the nomenclature and terminology on the fiber system of the brain should meet with general approval. For many years I taught from some of Dr. Fuller's models and I still study his architecture of the brain with confidence. The illustrations are very clear and they make the brain structure easier to remember.

DR. WALTER B. SWIFT, Boston: I have taught anatomy of the brain and psychoneuropathology for four years. When I went into this course there were charts and vague models and vague representations of tissue. I soon dispensed with all that, and supplied real brain and tissue sections for study. This has made the teaching much more simple and gives the student a chance to have in mind the visual pictures of the *real tissue* just as it is, not merely visual pictures of charts and models. Dr. Fuller has taken this matter one step farther; and shown not only the tissue and sections, but the relations of correlated tracts, and made that subject much easier to learn than from mere flat cross section. I shall use this method more than ever next year.

Dr. D. BOOTH, St. Louis: The use of proper names in connection with parts of the anatomy is very poor policy, because in that case the student has that abstract fact to remember instead of having the data formulated in his mind. I have always thought it easier to say *iter a tertio ad quartum ventriculum*, than to say aqueduct of Sylvius, because we are dealing with the things which we are trying to demonstrate. Association is a great aid to memory.

PERFORATED ULCERS OF THE STOMACH AND DUODENUM*

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Perforation of a gastric or duodenal ulcer is a most serious condition. The prognosis is extremely grave unless recognized early and quickly followed by direct and heroic treatment. Of all the acute maladies to which humanity is heir, none is more grave and none more spectacular when attended by successful treatment. The treatment is purely surgical. However, Moynihan[1] reports two cases successfully treated by medical means during the acute stage; but in each instance the cases came to operation at a later date. We occasionally hear of deaths from "acute indigestion," but proper investigation would prove, in the majority of instances, that there was a perforation of either a gastric or duodenal ulcer. This should not occur at the present time. The burden of diagnosis will rest with the general practitioner and, even though an accurate diagnosis may not be made, at least there are always sufficiently grave signs to demand a surgical consultation and intervention.

The etiology of perforation is that of ulcer in general plus its acute termination. It results from a local necrosis and may be due to trophic disturbances or bacterial invasions, or it may follow trauma. However, a previous chronic ulcer is usually present. The immediate cause of the perforation may result from one of many factors. In all series reported, muscular exertion, trauma, food or alcohol ingestion are given as the immediate factors conducive to perforation. The series here presented will confirm this. That an infective process predominates seems to be shown by the fact that so frequently there is a two-cycle phenomena of pain. A premonitory pain of greater or lesser degree was present in fourteen instances in this series. I believe this is due to a rapid necrosis, causing peritoneal irritation and spasm and hence the pain. Just how long the peritoneum will hold against this process cannot be determined exactly. The "big pain" has followed on an average of eight hours in each instance.

The chief symptoms which lead to a correct diagnosis in these cases are: (1) pain, (2) tenderness, (3) vomiting, (4) rigidity, (5) history of previous ulcer symptoms, (6) anxiety and restlessness, and (7) increasing pulse and rise of temperature. This enumeration is considered in the order of frequency observed in the series here reported.

Pain is sudden and violent. Its character is variously described by patients as "sharp," "cutting," "burning," or "bursting and stabbing." The prominent characteristic is the fact that it is unyielding. Its localization is mostly epigastric and supra-umbilical. Its quick radiation at times to the right iliac fossa has frequently led physicians and surgeons to consider an acute appendicitis; but careful inquiry of its early appearance most frequently localized it in the epigastric and right hypochondriac regions. Its radiation may be in any direction. The prominent factor is that the pain is excruciating and increasing in severity to such a degree that the patient is unwilling to submit to much examination.

Tenderness is unmistakable. It is acute and easily elicited. When the case is seen early, a careful and gentle palpation will lead to a marked tenderness over the site of the perforation. The site of maximum tenderness in this series varied mostly in the gastric perforations. There were fifteen duodenal perforations, and in twelve of them the most tender area was in the right hypochondriac region. In three, the right iliac fossa was made out as the most tender area; hence the improper clue to a correct diagnosis. Of the five gastric cases the maximum tenderness was all epigastric, and in one of these it was to the left of the median line.

Vomiting occurs very early, either reflex or induced, and is a valuable symptom. Frequently it gives slight relief to the agony at first, but later only increases the pain. However, I cannot say that vomiting will lead to any positive sign; for it may be present in almost any abdominal condition. Eliot[2] reports two cases in which there was no vomiting at all. In this series of cases, both gastric and duodenal, vomiting occurred very early and in every case. The character of the vomitus varied with the amount of food previously taken and also with the site of the ulcer. In duodenal

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Moynihan: Abdominal Operations, i, 165.

2. Eliot: Ann. Surg., lv, 594.

cases the vomitus was greater in amount than in the gastric cases.

The second symptom of greatest value is that of rigidity of the abdominal muscles. Its appearance is early and its increase always in proportion to the length of time following the onset of symptoms. Deaver[3] very aptly says, "There is no condition in which the upper abdominal rigidity is so early and so marked as in perforated ulcer." In our experience with these cases we have relied chiefly on the character of the pain and the amount of rigidity as the principal indications of perforation. The "boardlike" type is the most significant guide, and the fact that it is continuous points to a progressive peritonitis and hence is of great value as a diagnostic sign.

When a patient is seen suffering from so acute abdominal pain and has this characteristic rigidity, the history of previous indigestion of ulcer type is usually obtainable. In this series of cases only one instance is noted in which previous ulcer symptoms failed to be elicited.

In this case there was a history of trauma eight days before perforation and the patient was confined to bed, being treated for "contusion of the abdomen," following an injury. On the morning of the eighth day after the injury, he was informed by his physician that he could go about, but was warned against any exertion or violent exercise. The patient said he felt so good that he determined to return to work and did so. During the afternoon, while lifting a "heavy case onto a wagon" he was taken with the terrible pain in the pit of the stomach, which increased every minute and necessitated calling an ambulance. He was taken to the hospital and we operated three hours later, finding a perforated gastric ulcer on the anterior wall about 4½ inches from the pylorus (Case 12).

In all other cases the previous ulcer symptoms were present. In eleven a diagnosis of chronic ulcer had been made and all had been treated by medical means with the uniform result of temporary relief for a variable length of time. This would seem to indicate that surgical treatment should be instituted for chronic ulcer, if for nothing more than a prophylaxis against perforation.

In cases of so grave a nature one might expect that shock and its associated signs would be manifest. However, this was not found in this series. The patients, on the contrary, seemed to be in fairly good general physical condition. In only one instance, and that one was seen late, was there any evidence of shock. Yet these patients all presented an appearance of anxiety and restlessness which signified that some great calamity had taken place within them. Their attitude was one of intense suffering. But the average pulse rate in this series was 90. The average temperature was 99.8 F. The average respiration was 34. I consider the increased rate of respiration an objective sign of value, because of the attempt on the part of Nature to restrain the movements of the diaphragm, and thus lessen the pain. However, if shock is present, it is not a contraindication to immediate operation. If the patient presents signs of perforation, immediate surgical intervention is indicated, and every hour of delay decreases the chances of recovery to a marked degree. In Case 10 of this series the man arrived at the hospital fourteen hours after the onset of the intense pain. He was in profound shock, and exploration revealed a large perforated gastric ulcer with a general peritonitis. He received very little anesthetic and the perforation was closed. His reaction was good. He lived five days. A reperforation superimposed on his general peritonitis was the cause of his death.

It is a noteworthy fact that in this series not once is "absence of liver dulness" recorded. It is therefore considered that this sign is not as valuable as we might expect. However, in a series of cases recently reported,[4] "modification of liver dulness" was noted in 127 out of 175 cases of perforated gastric ulcer. The amount of distention which might cause the modification of liver dulness has frequently been attributed to the escape of gas into the peritoneal cavity. This will be true if the amount of gas is sufficient. However, it is my opinion that when there is an absence or modification of liver dulness the cause is chiefly that of a progressed peritonitis. Hence, if this condition can be made out, its value is simply that of an unfavorable prognostic sign. Numerous symptoms and evidences other than those mentioned may be found, but the time spent in eliciting them will only delay operation and hence increase the chances for a fatal outcome.

Given a patient who is taken suddenly ill with an acute cutting or piercing epigastric pain which is continuously agonizing and accompanied by a unique or marked rigidity of the abdominal muscles, particularly of the upper half, and from whom a previous history of indigestion is obtained, the most imperative indication is operation. Differential diagnosis may have scientific value, but the moral value is dependent on early operation. There is no excuse for delay in the presence of such symptoms. It is true that acute appendicitis, perforation of the gallbladder, acute pancreatitis and acute intestinal obstruction may give an almost identical picture. However, the treatment in each of these conditions will be early operation. It is, therefore, necessary that a surgeon should see these cases as soon as possible.

Between September, 1910, and March, 1916, it was my opportunity to operate in twenty cases of perforated ulcer. In this series there were fifteen duodenal and five gastric perforations. Death resulted in one case of perforated gastric ulcer. There were six females and fourteen males. The average age was 34 years. The average duration of acute symptoms before operation was about six hours. The treatment in each case was surgical.

In the gastric cases the site of the perforation was found to be in one instance (Case 2) on the lesser curvature and the treatment used was excision and suture closure.

In another case the perforation was on the posterior wall (Case 11) about 1½ inches from the pylorus. The attempt to close this, both by an approach through the lesser sac and by a transgastric method, failed and finally we did a pylorectomy and posterior gastro-enterostomy. This patient had been under observation and a diagnosis of chronic gastric ulcer was made. He was ordered to be prepared for operation, Nov. 29, 1913. At 8 p. m., November 28, he received a gastric lavage. At 4 a. m., on the 29th, he was taken with severe epigastric pain soon followed by vomiting which contained a good deal of blood-streaked mucus. At 6:30 a. m., a second and more intense epigastric pain came on suddenly and continued with increasing severity. I saw him at 7:30 a. m., and the boardlike rigidity of the abdomen was present with extreme tenderness in the epigastric region. He was quickly submitted to immediate operation. When the peritoneum was opened, a thin serous fluid escaped, but no blood clot or mucus. The lesser sac was distended and immedi-

3. Deaver, J. B.: Posterior Gastrojejunostomy in Acute Perforative Ulcer of the Stomach and Duodenum, THE JOURNAL A. M. A., July 12, 1913, p. 75.

4. Edinburgh Med. Jour., December, 1914, p. 461.

ately opened. A large blood clot was removed, followed by mucus, blood and bile. The perforation was found to be about 1/16 inch wide and plugged with a clot of blood. Our attempt to close it was unsuccessful, and in view of his good general condition and also from the fact that the general peritoneal cavity was not soiled by food particles, we proceeded with the pylorectomy and suture posterior no loop gastro-enterostomy. Drainage was instituted and the wound closed from below upward to the drain. His convalescence was stormy for two days, but soon returned to normal. His condition today is excellent. He has gained 26 pounds and enjoys his food without any distress.

In three cases (7, 10 and 12) the perforations were on the anterior wall. In Case 7, the site of the perforation was in the pars media and close to the greater curve or about 3 inches from the pylorus. In this case the history of acute pain was five hours in duration, and the vomitus contained a good deal of blood. When the peritoneum was opened there was an escape of gas and many blood clots, with a large amount of mucoid material and a few food particles. The perforation was small and closed by a purse string suture of chromic catgut with reinforcement by three Lembert sutures of fine linen. This was followed by a thorough cleansing of the abdominal cavity by means of the Poola patient across the ward. He was arrested in his attempt by the nurse. This displeased him very much and brought forth a vigorous complaint when seen on morning rounds. But he was not to go hungry. Somehow he managed to get word to his wife and she smuggled a piece of beefsteak to him that afternoon. Fearing detection, he must have masticated his meat very poorly and had finished about two thirds of it before he was discovered by the nurse. We did nothing when this was reported. However, about an hour and a half later he was seized with intense pain and vomiting. When his abdominal wound was examined by Dr. Coakley, the house surgeon, it was found to have been ruptured and that there was an escape of gastric contents. We reopened the entire wound and found that a reperforation had occurred. Some meat was found in the stomach and also particles in the abdomen. A rubber tube was inserted into the perforation and a gauze pack placed around its base, hoping for a gastric fistula. The patient died fourteen hours later of a general peritonitis.

In Case 12, the perforation was situated on the anterior wall about the junction of the pars cardia and the pars media. This case resulted from trauma and the perforation occurred eight hours after the injury. The immediate cause of the perforation was attributed to muscular exertion.

PERFORATION OF GASTRIC AND DUODENAL ULCERS

Case No.	Sex	Age	Hours of Symptoms	Preoperative Diagnosis	Operative Findings	Operation	Drainage	Soft Diet After Op.	Dis. from Hospital	Result
1	M.	35	6	Pf. d. d. ul.....	Pf. d. d. ul.....	Perforation closed.....	Yes	9 days	22 days	Gained weight; no symptoms
2	F.	51	10	Pf. gast. ul.....	Pf. gast. ul.....	Excision and closure....	Yes	10 days	30 days	No disturb.; good health
3	M.	23	8	Acute append.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	Yes	5 days	15 days	
4	M.	32	6	Pf. d. d. ul.....	Pf. d. d. ul.....	Perforation closed.....	Yes	8 days	21 days	Condition perfect
5	M.	22	4	Acute append.....	Pf. d. d. ul.....	Perforation closed.....	Yes	8 days	24 days	
6	F.	41	4	Pf. gast. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	Yes	6 days	26 days	
7	F.	19	5	Pf. d. d. ul.....	Pf. gast. ul.....	Perforation closed.....	Yes	10 days	22 days	
8	M.	30	6	Pf. gast. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	Yes	6 days	20 days	
9	F.	26	5	Acute append.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	No	5 days	16 days	
10	M.	56	14	Pf. gast. ul.....	Pf. gast. ul.....	Perforation closed.....	Yes			Died
11	M.	59	8	Pf. gast. ul.....	Pf. gast. ul.....	Pylorectomy and Gas.-Ent.	Yes	10 days	28 days	Gained weight; good health and appetite
12	M.	25	4	Pf. d. d. ul.....	Pf. gast. ul.....	Perforation closed.....	No	7 days	14 days	Some distress
13	M.	38	6	Pf. d. d. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	Yes	6 days	24 days	Gained in weight; excellent health
14	M.	33	4	Pf. gast. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	No	5 days	21 days	Little gastric distress after eating
15	F.	38	7	Pf. d. d. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	Yes	5 days	23 days	Gained in weight; excellent health
16	M.	24	5½	Pf. d. d. ul.....	Pf. d. d. ul.....	Perforation closed.....	No	8 days	18 days	Some distress
17	M.	37	6	Pf. d. d. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	No	6 days	27 days	Excellent in every way
18	M.	29	9	Pf. d. d. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	Yes	5 days	25 days	Gained weight; good health and appetite
19	F.	41	5	Acute append.....	Pf. d. d. ul.....	Perforation closed.....	Yes	9 days	23 days	
20	M.	22	4½	Pf. d. d. ul.....	Pf. d. d. ul.....	Closure and Gas.-Ent....	No	5 days	15 days	

Kenyon sucking apparatus. A soft rubber tube drainage was inserted at the lower angle of the wound. The patient made an uneventful recovery. She has not been seen or heard from since Feb. 23, 1913.

In Case 10, the perforation was situated on the anterior gastric wall about 2 inches from the pylorus. The lumen of the perforation admitted two fingers. It was the largest that I have ever seen. The duration of symptoms was fourteen hours. The patient was in shock and presented all the evidences of a man rapidly dying from a general septic peritonitis. The abdomen contained an enormous amount of thick turbid fluid, with many food particles. Numerous gas bubbles were noted. A grayish white exudate covered the entire under surface and margin of the liver. Many loops of bowel were matted together by the same sort of exudate. The perforation was closed by two rows of sutures and covered by an omental graft. The abdominal cavity was thoroughly cleansed by the sucking apparatus, and drainage instituted. It was noted that the closure embarrassed the pyloric opening very much. However, because of the precarious condition of the man, gastro-enterostomy was not attempted. Drainage was placed at the lower angle of the wound and likewise in both flanks. The patient was in very good condition for three days. He retained all liquids, both by rectum and by mouth, and we were jubilant. However, he was a man accustomed to a full diet and on the fourth day got out of bed and attempted to take food from

On opening of the abdomen in the median line, the entire anterior wall of the stomach was ecchymotic. The perforation was very small in caliber. The adjacent stomach was quite adherent to the anterior wall of the abdomen. A purse string of chromic catgut was first used to close the perforation, and then three Lembert sutures of fine linen placed to reinforce the closure. After removal of the appendix, which was found to be chronically diseased, the abdomen was closed without drainage. This man had very little reaction, and left the hospital on the fourteenth day after the operation.

In the fifteen duodenal cases multiple ulcers were noted in only one instance (Case 18). The site of the perforation in twelve of these was on the anterior wall and in the first portion of the duodenum. In two instances (Cases 15 and 17) the perforation was on the upper border and close to the pylorus. In one instance (Case 13) the perforation was on the posterior wall and about 1 inch from the pylorus. The operative procedure in dealing with these cases was as follows: In ten cases (3, 7, 8, 9, 11, 13, 14, 15, 17 and 18) the perforation was closed by two layers of sutures. The abdominal cavity was then thoroughly cleansed, either by the sucking apparatus or by mopping out with gauze. This was followed by a posterior no loop

gastro-enterostomy. Recovery in each instance was most satisfactory and without any marked degree of reaction or discomfort. In five cases (1, 4, 5, 16 and 20) the operative procedure was a simple closure of the perforation by two rows of suture and covering with an omental graft. This was always followed by a thorough cleansing of the abdominal cavity by means of the sucking apparatus or mopping out with gauze pads. In two cases (16 and 20) no drainage was used. In the convalescence of these cases it was noted that the patients suffered a great deal more pain and discomfort than those in which gastro-enterostomy was done.

In the operative procedure used in the series under consideration, routine doses of ¼ grain of morphin and $\frac{1}{100}$ grain of atropin were given as early as possible after deciding to operate. The anesthetic in every case was ether by the open-drop method. The site of the incision was in most cases a midright rectus one in the upper zone. The method of Gibson[5] to determine gas by the use of water in the wound before opening the peritoneum was practiced in one case (Case 19) and proved very satisfactory. Gas bubbles were seen immediately after the peritoneum was opened, and before discoloration or disappearance of the water. The incision should be generous and thus permit of easy exploration and thorough cleansing of the abdominal cavity. To accomplish this cleansing, the sucking apparatus devised by Pool and Kenyon was used in the majority of cases. Its operation is simple and its results very satisfactory. Its advantage over mopping out with gauze is that there is less injury to the peritoneum, and hence lessened opportunity for the formation of adhesions.

The principal feature open to discussion in the operative procedure, when dealing with a perforation of a gastric or duodenal ulcer, is whether or not a gastro-enterostomy should be added, after the closure of the perforation. There are many opinions for and against. The most recent that has come under my observation is that of Gibson,[6] in which he says:

> I reject gastro-enterostomy as a curative measure in this class of cases, notwithstanding that I have had very gratifying experience with it in the cure of chronic ulcers. I consider it unwise to do a gastro-enterostomy for a condition that is going to be cured anyhow. In a very small number of cases in which gastro-enterostomy may possibly become necessary, it can wisely be postponed until its indications are clearly recognizable. The small number of cases in which it may be necessary will probably be balanced by the number of cases in which gastro-enterostomy fails to prove satisfactory, either because it is improperly placed, too small (subsequent shrinkage), too large (a very disagreeable condition), or the rare but exceedingly grave gastrojejunal ulcer. Moreover, in dealing with acute perforations it seems wiser to do only what is absolutely necessary and not subject the patient, who may have to struggle with a possible peritonitis, to an unnecessarily long operation or risk spreading the infection by the performance of a gastro-enterostomy under imperfect aseptic conditions. The after history of this series of cases contains no instances in which we have had occasion to regret the omission of this step.

This is a clear, concise and positive statement. It has been made after a very practical and painstaking study of end-results. I regret that it was impossible for me to locate my cases in time to make Roentgen-ray studies. However, we have been able to interview most of them and we shall discuss the end-results at another time. The position of Dr. Gibson deserves serious consideration and will undoubtedly furnish a safe guide to any one who considers gastro-enterostomy too grave an operation to be done in the presence of a perforation. However, this attitude has not met with general practice. Eliot[7] presents a series of communications from numerous advocates. Among them are Bretano and Körte of Berlin; Krogius of Helsingfors; Petrén of Lund, and W. J. Mayo, Peck and Woolsey of this country. These men do not favor it as a rule, but depend on the factors of (1) a good physical condition of the patient; (2) the narrowing of the lumen of the pylorus by the closure of the perforation, and (3) the site of the ulcer being at or near the pylorus. Deaver[8] is more enthusiastic, and says that "the danger of infection of the lesser peritoneal cavity by gastro-enterostomy has been overrated." He goes further and considers the operation safe even after sixteen hours of duration of symptoms, claiming that at this time "it is simply a matter of dexterity."

In this series, gastro-enterostomy was added to the closure of the perforation in ten cases. In one it followed pylorectomy, making eleven instances. The factors that were taken into consideration as indication for the operation were: 1. The general condition of the patient would permit it. 2. The duration of symptoms was not over ten hours. 3. The site of the perforation was close to the pylorus, and closure of it seemed to narrow the lumen to a marked degree. 4. It was assumed that by its performance the period of convalescence would be materially shortened, a factor always worthy of consideration, especially among the class of patients we meet in the wards of our city hospitals. 5. We assumed that if there were multiple ulcers, gastro-enterostomy would diminish the possibility of a second perforation. We never started out with an idea of speed; in fact, our work in each case was deliberate and careful. The average length of time taken to do the gastro-enterostomy was between thirty-five and fifty minutes. In all cases in which this operation was done, we did not encounter any increase in infection. Neither did we have any reason to regret our procedure. The patients all made satisfactory recoveries and enjoyed their semisolid food with more relish than those on whom we did the simpler operation of suture closure. From this experience we feel that there is a place for gastro-enterostomy in the treatment of perforated ulcers of the stomach and duodenum. It is our opinion also, that in perforations at the cardiac end or on the lesser curve of the stomach, gastro-enterostomy should not be attempted. Either excision and suture closure, or simple closure should be the procedure in these cases.

In the consideration of the subject of drainage of these cases, we have come to do less of it. Especially is this true in patients operated on within four or five hours after perforation. Our method has been to drain the affected zone with soft rubber tubes. In only one instance have we used counter drainage. Our routine has been to drain through the original abdominal wound. At no time have we used the suprapubic drainage. By the aid of the sucking apparatus most of the abdominal fluid can easily be removed, and hence fewer and smaller drainage tubes need to be employed. However, in late cases, I would consider it unwise not to use sufficient drainage.

5. Gibson: Surg., Gynec. and Obst., April, 1916.
6. Gibson: Surg., Gynec. and Obst., xxii, 393.
7. Eliot: Ann. Surg., lv, 709.

The postoperative care of these patients is important. The Fowler position and saline by rectum should be instituted immediately. In this series when gastro-enterostomy was done, water was given by mouth in from ten to twelve hours after the operation. Four to six hours later, if the stomach remained quiet, they received milk or other fluids in increasing amounts. In the cases of simple closure of the perforation, nothing was given by mouth from thirty to thirty-six hours after operation. Then small quantities of water by mouth was allowed at frequent intervals for six to ten hours. If the stomach did not rebel, other fluids were administered in increasing amounts. All patients received an enema at the end of thirty hours and then daily for five days. At this point a cathartic, usually castor oil, was given. Soft solids were given the gastro-enterostomy patients on an average of the fifth or sixth day, and increased as rapidly as possible. The simple closures did not receive this diet until on an average of the eighth or ninth day. The question of diet in the postoperative care of these patients has been the subject of considerable discussion. Gibson[6] very potently says, "It is about time that we get away from the fetish of underfeeding or of the particular value of certain kinds of diet," in the after-care of these cases. I agree with this in every way. Nothing can be more of a worry to a patient than to know that he must adhere to some certain kind of rigid diet for a long time. When the patient is discharged from the hospital he should be able to handle a regular diet. However, we have cautioned against the use of very coarse food and have endeavored to educate the patient to the fact that good digestion depends mainly on mastication.

In our attempt to compile the end-results in this series, we have not had the success desired. Most of these patients belong to a migrating class and hence it is next to impossible to locate them. However, we have secured information in twelve cases of the series (Cases 1, 2, 4, 10, 11, 12, 13, 14, 15, 16, 17 and 18). Of this number four (Cases 2, 10, 11 and 12) were gastric and the other eight were duodenal perforation. In the gastric cases there was one death, previously detailed. In the three remaining cases all report a gain in weight and freedom from pain. Patients 2 and 11 report that they enjoy good appetites and relish their food without any signs of stomach distress, either immediately after or later. In Case 12, which was traumatic in origin, the patient reports that he suffers with an occasional distress and considerable gas belching beginning twenty to thirty minutes after eating and lasting about ten minutes. In the eight duodenal cases, five (Cases 13, 14, 15, 16 and 18) had gastro-enterostomy done after the closure of the perforation. All report gain in weight and freedom from any distress or pain. They seem to enjoy perfect health in every way, and assure us that they are not worried about any recurrence of their trouble. We did not receive a similar encouraging report in the three remaining cases (Cases 1, 14 and 16) in which simple closure was done. Patient 1 says that he has intermittent spells of distress coming on three to four hours after eating and is always relieved by an alkali. However, he further says that these attacks are now less frequent and of shorter duration. Patient 4 has no complaint to make except that he is "bothered with gas after eating which lasts about one-half hour." Patient 16 was operated on, Dec. 6, 1915. We did a simple closure of the perforation, five and one-half hours after the onset of symptoms. No drainage was used. He had a small skin stitch infection and left the hospital eighteen days after the operation in apparently good condition. He was seen and interviewed, May 6, 1916, just five months after the operation. His history was that he enjoyed perfect health up to May 3, 1916. At this time he began to have rather an agonizing pain in the pit of his stomach, coming on about two hours after meals and accompanied by considerable sour regurgitation. Vomiting occurred twice. He refused Roentgen-ray examination or gastric analysis. However, by palpation and percussion there was distinct evidence of a gastric dilatation, apparently caused by some degree of pyloric stenosis. His appendix had previously been removed and we advised gastro-enterostomy. However, he elected to try his alkali once more.

CONCLUSIONS

1. The diagnosis of perforation of a gastric or duodenal ulcer should be made in the majority of cases, and the imperative indication is early operation.
2. In the treatment of cases of duodenal or prepyloric perforations, gastro-enterostomy can safely be added if patients come to operation within ten hours after the onset of symptoms.
3. Simple closure of the perforation without gastro-enterostomy is a safe routine, but later stenosis is more apt to occur.
4. Drainage can be discarded in early cases, especially if operation is performed within six hours after the onset of symptoms.
5. Early use of a liberal diet should be practiced.
6. A complete study of end-results is a necessity before any definite routine can be laid down.

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ABSTRACT OF DISCUSSION

DR. CHARLES H. PECK, New York: Cases of perforation of gastric and duodenal ulcers fall into three classes: First, the acute perforation with considerable immediate leakage, the type of case which Dr. Sullivan reported; second, the chronic penetrative ulcers which are protected by inflammatory adhesions and never have any considerable leakage at one time; and third, the ulcers which leak from time to time, causing attacks of localized peritonitis, and soon becoming sealed and protected, falling again into the chronic group. A certain percentage of the cases classed as acute perforations belong in this third group. Perforations near the pylorus are apt to be accompanied by a considerable amount of inflammatory exudate and consequent narrowing of the pylorus. In this group the leakage is often moderate and the condition of the patient relatively good, hence gastro-enterostomy can often safely be added to the immediate closure of the perforation. The question as to whether gastro-enterostomy shall be done at the time of primary operation is an important one, and the indications laid down by Dr. Sullivan express my views very well. In the larger perforations of gastric ulcer with a good deal of immediate leakage I think it is usually unsafe to attempt to do a gastro-enterostomy, but in an ulcer near the pylorus or in duodenal ulcer with moderate leakage the operation tends to help toward the ultimate cure of the condition. I have seen closure follow without gastro-enterostomy in one case of secondary perforation of a duodenal ulcer. Dr. Gibson states that the perforation itself tends to excite a reaction in an ulcer which aids in its ultimate healing and for that reason he thinks gastro-enterostomy is never indicated. When the ulcer has perforated it is undoubtedly true that the acute reaction and inflammatory process around the ulcer tend to aid in its healing. At the Roosevelt Hospital we had between 1910 and 1915 about 30 perforated ulcers; two thirds were duodenal ulcers, one third gastric. In the duodenal cases we had no deaths from extension of the peri-

tonitis; there were two deaths from complicating conditions. In the gastric group there were many large perforations in the center of a large indurated area, with excessive leakage and there were five deaths from extension of peritonitis which was present at the time of the original operation. In the early part of our series comparatively few gastro-enterostomies were done, but not so later. In studying the results we believe that the gastro-enterostomy did not add to the immediate mortality if the cases were properly selected. Early diagnosis and prompt operation are the keynotes of success. We are all agreed that the patients who come under observation and are treated within the first twelve or fifteen hours almost invariably recover, while in many of the later cases death occurs from extension of the peritonitis.

DR. JOHN T. BOTTOMLEY, Boston: I do not agree with Dr. Sullivan in the matter of doing away with drainage, even in early cases. I have seen the pelvis full of a nasty, turbid, dangerous fluid one and a half hours after perforation of a small gastric ulcer. With that fact in view it is in my opinion unsafe to do away with drainage in any case. The placing of a drainage tube in the pelvis greatly increases the margin of safety. We all vary in the degree of our resistance to infection and no man can measure that degree before operation, and as a matter of safety I believe drainage should always be provided. I disagree also as to giving a liberal diet shortly after operation. I believe in keeping these patients on a low diet for a considerable time. They are usually not awfully sick. They recover quickly and there is no particular indication for liberal diet soon after operation.

I think a search should be made in all cases of gastric ulcer for the source of infection. We are coming to regard a large proportion of duodenal and gastric ulcers as an end result of infection in another portion of the body. This should be sought for and, if found, should be eliminated.

DR. HARRY D. JOHNSON, New York: Dr. Sullivan's series of cases proves two things: first, that the doctor who makes the diagnosis and refers the patient for operation is alive to the gravity of these cases, and second, that he chooses his surgeon well. If we get these cases early when we are dealing with a peritonitis due to the irritative character of the stomach or duodenal contents, all we have to do is to stop the leak and the alkaline secretions of the abdomen will neutralize the acid stomach secretion, provided there has not been the supervention of a bacterial peritonitis. At the end of twelve hours the picture changes—the chemical irritation has superimposed a bacterial invasion. The important thing is the character of the rigidity. They are so rigid that if you walk on their belly you would not sink in. The question of liver dulness as a symptom is a delay in diagnosis. That little bubble of fluid in the gastric angle is a late occurrence and should never be mentioned as a symptom of perforation of the stomach or duodenum.

DR. RAYMOND PETER SULLIVAN, Brooklyn: The use of drainage in these cases is purely a matter of personal opinion. I cannot say just when the peritonitis will be septic. However, in dealing with early cases we assumed, from the general condition of the patient and the appearance of the abdominal contents, that the peritonitis present was chemical and hence limited our drainage as much as possible. The results justified our action. When these patients come to operation under ten hours after the onset of symptoms, the abdominal cavity should be cleansed thoroughly by a sucking apparatus in preference to mopping with gauze. Thus the adhesion band formation, so apt to cause secondary obstruction, will be lessened greatly. I have never used the suprapubic drainage. Our method has been to drain from the lower angle of the abdominal wound. Counter drainage was used in only one case.

It is just possible that in Boston the food may differ from what we eat in Brooklyn, and hence they see more constantly the sign of "absence of liver dulness." We have never recorded this condition. If it were present I consider it would be misleading, because so frequently a dilated colon will give modification of liver dulness. Perforation may occur at any time. If it occurs when the colon is loaded, fermentation therein may lead to modification of liver dulness.

PSEUDO-APPENDICITIS *

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In a recent clinic (June, 1915) Murphy says, "We surgeons are not talking enough about early operation in appendicitis." That, I take it, depends on the audience. At such a gathering as this, one is justified in assuming that the question of acute appendicitis is settled, at least for the time being.

The method and time of treatment, and postoperative measures are practically uniform; delay in proper treatment is usually due to uncertainty in diagnosis, and the inexcusable estimated general hospital mortality of 10 per cent. is due to failure of some one to recognize well accepted principles of surgical diagnosis or treatment.

The question of chronic appendicitis calls for attention, not because of a high mortality rate, but because of a rather disconcerting morbidity rate, a postoperative persistence of symptoms. When a patient complains of the same symptoms after appendectomy as before the operation, there is sufficient reason for belief that the original symptoms were not caused by the appendix—that the treatment was based on an incorrect diagnosis. The large and apparently increasing number of these cases calls for close attention and an analysis of all available data, in the hope of arriving at some more definite justification for making a diagnosis of "chronic appendicitis."

In gathering material for such an analysis, I have reviewed my cases of unsatisfactory results following removal of the appendix, but have excluded:

A. Acute cases.

B. Cases in which the appendix was removed during the course of an operation for other conditions.

C. Cases in which ordinary sequelae of laparotomy have occurred, such as hernia, ventral or inguinal, ileus, fistula, phlebitis, etc.

After excluding the foregoing those remaining are unquestionably due to mistaken diagnosis and may be divided into:

D. Cases in which the true pathologic lesion, and proper diagnosis, has been demonstrated at a subsequent operation, or is reasonably evident, such as gastric and duodenal ulcer, cholecystitis, pancreatitis, lesions of the genito-urinary tract, and of the uterus and adnexa, tuberculosis, syphilis, malignancy, orthopedic conditions, and spinal cord lesions.

E. Cases to which I shall direct attention, namely, those in which the persistence of the symptoms has not been rationally explained, and which might well be termed pseudo-appendicitis.

After excluding Classes A, B, C and D, I found between January, 1909, and January, 1916, records of eighty-seven cases in which the removal of the appendix, for chronic appendicitis, or interval operation for appendicitis, had not been followed by relief of symptoms; forty-eight of the eighty-seven patients were operated on by myself; 212 patients were operated on during this interval with such a diagnosis.

Forty-eight in 212 cases seems a high percentage of unsatisfactory results, and it is because of this fact, coupled with the paucity of similar reports on remote results in the literature, that the present analysis has been made.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

REVIEW OF CASES

A review of these cases reveals:

Ages: Between 10 and 15, four; 15 and 20, sixteen; 20 and 25, twenty-one; 25 and 30, twenty-two; 30 and 35, ten; 35 and 40, eight; 40 and 45, three; 45 and 50, two; 50 and 57, one.

Sex: Female, 73; male, 14.

Civil State: Married, 41; single, 46.

Fat, 21; thin, 41.

Duration of Symptoms Before Operation: "Some weeks," 4; half year, 7; one year, 9; two years, 5; three years, 6; four years, 5; five years, 6; six years, 4; seven years, 3; eight years, 5; ten years, 3; "for years," 23.

Number of Attacks: One, 6; two, 4; three, 2; four, 2; five, 1; six, 6; "many," 19; "repeated," 11; "yearly," 8.

Character of Pain: "Continuous," 16; "severe attacks," 23; "mild attacks," 26.

Tenderness, 25; rigidity, 9; hypersensitiveness, 39; side-ache, 20; burning sensation, 14; colic: biliary, 9; renal, 5; lead, 1; ileac tumor, 8; acute ileus, 4.

Location of Pain: Right hypogastric, 10; epigastric, 20; umbilical, 8; right ileac, 37; left side, 7; "general abdominal," 14; lumbar, 8; "tender scar," 2.

Gastric Symptoms: Nausea, 52; vomiting, 24; "indigestion gas," 58.

Temperature: Elevated, 12 (two of these subsequently developed pulmonary tuberculosis); not elevated, 73 (subnormal temperature, frequent).

Bowel Movements: Constipation, 54; diarrhea, 2; alternating diarrhea and constipation, 7; normal bowel movement, 24.

General abdominal ptosis, 80.

Skin: Acne, 8; jaundice, 15; pigmentation, 12; hairy skin, 4.

Urinary Symptoms: Frequency, 16; suppression, 1; retention, 3.

Uterine Symptoms: Dysmenorrhea, 28; amenorrhea, 2; pregnancy, 5.

Nervous Symptoms: "Neurotic," 22; hysteria, 3; "spasms," 3; "fainting spells," 5; epilepsy, 1; aerophagia, 7.

"Neuritis" of: Arm, right, 12; left, 7; head, 3; breast, 4; foot, 1; painful heel, 2.

Right sided pain on exertion, 42.

Family History: Similar trouble in: mother, 5; father, 1; sister, 6; brother, 1.

Lack of equilibrium between the vagus and the sympathetic divisions of the autonomic nervous systems is plainly evident in the majority of these cases.

Miscellaneous: Congenital dislocation of hip, 1; talipes equinovarus, 1; strabismus, 4; high palatine arch, 1; intestinal parasites, 4; inguinal hernia, 6; femoral hernia, 3; umbilical hernia, 12.

Blood Examination in Seventeen Cases: Hemoglobin from 60 to 70 per cent., 2; from 70 to 80 per cent., 3; from 80 to 90 per cent., 8; over 90 per cent., 4.

Lymphocytosis, 5.

Leukocytosis, none.

Wassermann Reaction: Negative, 12.

Spinal Puncture in Twelve Cases: Increased tension, 9; Wassermann negative, 12.

Gastric Analysis in Twenty-Eight Cases: Hydrochloric acid absent in 7 cases; increased in 10 cases; decreased in 5 cases; normal in 6 cases; stool, mucus in 9 cases.

Roentgenoscopy in Twenty-Two Cases: General abdominal ptosis, in all; double barreled ascending colon, 5; delay at terminal ileum with dilatation of cecum and ascending colon, 15; redundant sigmoid, 1.

Histology of appendix showed nothing characteristic.

Histology of glands showed simple inflammatory changes.

Culture from glands, negative.

Conditions Found at Primary Operation in Forty-Eight Cases: Appendix "normal," 6; appendix large, swollen, tense, erect, congested, 4; small appendix, 7; small fibroid appendix, 12; appendicitis obliterans, 2; small fibroid appendix "with adhesions," 9; mucocele of appendix, 1; retrocecal appendix, 6; fecal concretions, 12; free abdominal fluid, 10; enlarged mesenteric glands, 9; Lane kink, 6; general abdominal ptosis, 12; cecum mobile, 17; pericolic membrane, 15; perisigmoiditis, 3; double barreled colon, 2; hepatic flexure absent, 2; omentum adherent to left round ligament, 1; megaduodenum, 1.

Duration of Time After Operation Before Return of Symptoms: Less than six months, 39; between six months and one year, 27; between one and two years, 8; between two and three years, 4; between three and four years, 1; between four and five years, 1; between eight and nine years, 1.

Noteworthy Circumstances Which Preceded the Return of Symptoms: Husband in bankruptcy two years after operation, 1; business, law suit two years after operation, 2; pulmonary tuberculosis one year after operation, 1; three years after operation, 1; traumatism to abdomen a few months after operation, 1; "fell down stairs" six months after operation, 1; operation on mother one year after operation, 1; sudden death of husband one and one-half years after operation, 1; pregnancy one year after operation, 1; five years after operation, 1.

Conditions Found at Secondary Operation in Nineteen Cases: Lane kink, 6; double barreled colon, 8; general abdominal ptosis, 11; cecum mobile, 12; cecal torsion, 1; omental adhesions, 3; pericolic membrane, 12; perienteritis (ileal), 1; cholecystitis (noncalculous), 4; mesenteric glands, 7; adhesions between ileum and colon, 1; megaduodenum, 1; "adhesions" absent at stump of appendix, 19.

Secondary Operations: By author, 19; by others, 8; pericolic membrane, division of, 12; cecopexy, 8; Lane kink, division of, 6; omental "adhesions," division of, 3; perisigmoiditis, division of, 1; colectomy, 3; enterostomy, 1; ileosigmoidostomy, 1; cecosigmoidostomy, 1; cholecystostomy for noncalculous cholecystitis, 3; dilatation and curettage, 2; tonsillectomy, 2; operation for kidney stone (no stone found), 3; nephrectomy, 1; exploratory laparotomy, 1; hysterectomy, 1; Coffey's hammock operation, 1; gastroenterostomy, 1; "retroversion" of uterus and ovarian cyst, 1.

Multiple Operations: Three, 4; four, 1; five, 2; six, 1.

Results of Secondary Operations: Unknown, 2; improved, 9; unimproved, 15; death, 1.

Results of Cases with No Secondary Operation: Unknown, 8; improved, 16; unimproved, 36. In three striking instances there was sudden spontaneous unaccountable recovery of health after a prolonged period of disability following secondary and in one instance multiple operation. Five improved after pregnancy.

SUMMARY

These cases of pseudo-appendicitis were usually in young thin adults from 15 to 30 years of age, more common in females, and about equally divided between married and single.

The duration of symptoms varied from "some weeks" to ten or more years. The number of "attacks" varies between one and six to "many," some recurring at regularly stated intervals.

The pain of attacks rarely put the patient to bed, though classed as "severe" in about one third and "mild" in one third of the cases. The pain is frequently described as "continuous" or "side ache" and made worse by exertion. Hypersensitiveness and tenderness are usual, and a "burning" sensation is frequent, but rigidity is not common.

Pain is usually located in the right iliac fossa, though it may occur anywhere on the right side, or at the umbilicus.

Tenderness at the scar of a previous operation is rare.

Temperature elevation is uncommon, subnormal temperature frequent.

Nausea is usual, vomiting rare, "indigestion" and "gas," frequent, with constipation present in two thirds of the cases.

General abdominal ptosis is very common, iliac tumor, gas tumor, dilated cecum and gurgling in the right iliac fossa almost constant.

Skin changes are variable, and urinary symptoms occasionally present.

These patients are frequently spoken of as "neurotic" in the history, and complain of "neuritis" in various parts of the body, usually on the right side. Goiter was present in a small proportion of cases.

Blood examinations show leukocytosis absent, lymphocytosis rarely present, the Wassermann in the blood, negative.

Spinal puncture in nine of twelve cases shows increased tension. The Wassermann in the spinal fluid is negative in twelve cases.

There was lack of hydrochloric acid in the stomach contents in one fourth of the cases examined.

Mucus in the stool is not common.

Roentgenoscopy shows ptosis, and delay at ileum or ascending colon.

Sections of the appendix show nothing characteristic. The recent report of Muschowitz is of interest in this connection.

Mesenteric glands, on section show simple hyperplasia, and cultures from same are negative.

At primary operation in forty-eight cases the appendix was usually small, and with fecal concretions in one fourth of the cases.

There was free fluid in the peritoneal cavity in one fifth of the cases and enlarged mesenteric lymph glands in one fifth of the cases.

Ptosis, cecum mobile, Lane kink and pericolic membrane are not uncommon.

The primary immediate result of operation is very satisfactory, but there is usually a return of symptoms within the first year.

Trauma, pulmonary tuberculosis or "nervous shock" in some cases precede the return of symptoms.

Findings at Secondary Operation (in Nineteen Cases) by the Author: Adhesion of omentum or viscera to site of appendix is absent. "Adhesions" are uncommon; ptosis, cecum mobile and various membranes are constantly present. Mesenteric lymph glands are found enlarged in one third of the cases.

The remote results of various secondary operations are not encouraging: in twenty-seven cases, unknown, 2; improved, 9; unimproved, 15; death, 1. In sixty cases in which operation was not performed a second time, the results were: unknown, 8; improved, 16; unimproved, 36.

CONCLUSIONS

The existence of such a clinical entity as "chronic appendicitis" has been questioned.

Evidence presented shows that the diagnosis is often incorrect and is being made with unwarranted frequency.

After eliminating all demonstrable pathologic conditions that might possibly be confused with "chronic appendicitis," there remains, in certain cases, some cause for pain in the right iliac fossa, other than the appendix, the exact cause of which is as yet not definitely known.

Such cases of pseudo-appendicitis are frequently associated with visceral ptosis, constipation and neurasthenia.

Appendicitis, either acute or chronic, or an appendix that has been the site of an unquestioned inflammation, calls for surgical treatment.

Pseudo-appendicitis, on the contrary, is in no way related to the appendix, and is a nonsurgical condition in which appendectomy is contraindicated; hence the necessity of a differential diagnosis between these conditions.

Every case of so-called chronic appendicitis that is associated with enteroptosis, constipation and symptoms of nervous instability should be looked on as pseudo-appendicitis until careful and painstaking study of the history and clinical findings prove it to be otherwise.

In patients unwilling, or unable, to submit to this careful differential diagnosis, the good repute of surgery demands that the facts, as to this uncertainty in diagnosis, and hence in the result of treatment based on such diagnosis, should be frankly presented to the patient or responsible relatives.

If it is then decided that the appendix shall be removed, the operation will be exploratory, a short cut to diagnosis, with the diagnosis and prognosis withheld until after the operation.

The diagnosis of chronic appendicitis presupposes a previous attack of acute appendicitis.

It is often impossible to determine the character of a previous attack of right sided abdominal pain, from the data available at a subsequent time, especially in view of the fact that cases of classical acute appendicitis with damage to the appendix, demonstrable at subsequent operation, are many times entirely free from all symptoms for long intervals.

Hence the advisability of seeing the patient in one of these attacks, the characteristics of which may clear up the case.

Cases characterized by more or less continuous discomfort in the right side of the abdomen, or of mild attacks of short duration, with brief intervals of relief, in which the pain is made worse by exertion and with relief on recumbency, associated with hypersensitiveness of skin and spasm of muscle, gas tumor, cecum mobile, gurgling, nausea but rarely vomiting, normal or subnormal temperature, no increase in leukocytes, constipation, enteroptosis, and evidence of vagus irritability, leading sometimes to chronic invalidism, are often pseudo-appendicitis and are not permanently relieved by removal of the appendix. Such cases should, therefore, be given careful consideration before operative measures are instituted.

An entirely satisfactory explanation of this state of affairs has not yet been presented, though intensive study suggests that a lack of balance between the vagus and sympathetic divisions of the autonomic nervous system may be an etiologic factor.

This in turn may be due to abnormal function of some of the endocrine glands.

Much is to be learned regarding this clinical syndrome, but in the meantime accumulating experience strongly suggests the desirability of emphasizing the fact that the diagnosis of chronic appendicitis calls for more justification than is often given it.

ABSTRACT OF DISCUSSION

DR. H. A. BLACK, Pueblo, Colo.: There are but few structures within the upper abdomen disease of which may not give rise to symptoms which resemble those of chronic appendicitis. In chronic gastric disorders there is probably greater confusion than in any other condition within the abdomen as applied to chronic appendicitis. In these cases the Roentgen ray, the test meal, even hemorrhage from the stomach, does not and should not convict that organ of ulcer. The absence of pain and tenderness does not absolve the appendix from possible guilt. Of course, these cases can usually be demonstrated by operation, but it is much more pleasant to confirm rather than to be confounded by our operative findings. Pyloric spasm is probably the chief factor of confusion between chronic stomach disorders and chronic appendicitis. Pyloric spasm is very common in chronic appendicular disease, especially that form known as the obliterative type of appendix. Given a case of chronic peptic ulcer versus chronic appendicitis, there is required skilled surgical diagnostic ability as well as a very high degree of judicial temperament. The pyloric spasm will often confuse the

Roentgen-ray findings; not infrequently it accounts for hematemesis and I believe it is probably the direct cause of so-called "hypersecretion" through retention of the natural gastric secretions, rather than that the glands of the stomach have actually produced an abnormal amount—a hyperretention rather than a hyperproduction. I would apply the same reasoning to the condition of hyperacidity when encountered in connection with pyloric spasm, for the contraction not only retains the secretion within the stomach but also prevents the regurgitation of the intestinal secretion which normally takes place and to a normal degree lessens the acidity of the stomach contents.

DR. ERNEST LAPLACE, Philadelphia: Long before the days of appendicitis we heard of trouble in the right iliac region called typhlitis. In fact most right iliac conditions were referred to the cecum. We now know that these troubles start generally in the appendix. As a result the cecum is now almost forgotten. At the beginning of the colon there are two pouches, one the appendix and the other the cecum. As the appendix can receive and retain intestinal contents, we have entirely neglected the cecum which receives and may retain, beyond the proper time, intestinal contents subject to all decompositions. Now the cecum is coming back into its own. When we operate and find the appendix and remove it because there is trouble there, we have possibly overlooked the real seat of the trouble, the cecum, and there may be, probably there is, a chronic form of transudation of toxins through the cecum which leaves no apparent trace of itself. We know that in cases of so-called recovery after a phlebitis on the left side, the insidious poison may have traveled from the right side to the left and we must conclude that there are toxins which leave no trace behind. It would seem that decompositions take place in the cecum which do not result in the necessary irritation which produces bands and adhesions and so on, but which does produce a neurasthenia which precedes or follows the enteroptosis, etc. I wish to make a plea against the very small incision in cases of appendicitis. We must explore. Because pain is there we must not conclude that it is due to the appendix only. The whole region should be examined in order to fulfil the indication and not allow a neighboring lesion to pass unnoticed.

DR. M. HOWARD FUSSELL, Philadelphia: Dr. Connell advises what many of us cannot do, to differentiate between those cases which do not show any pathology and the actual cases of appendicitis giving rise to pain in the right iliac fossa. The reasons for this difficulty in diagnosis are appendix, gallbladder and gallduct disease; stomach conditions, kidney conditions and so on often are difficult and sometimes impossible to differentiate from true or apparent appendicitis. Now as he has suggested that all the pseudo cases, as he calls them, that is, all these cases of pain in the right iliac fossa which are *not* due to an inflammatory condition are frequently accompanied by splanchnoptosis and also practically all of the individuals, man or woman, are neurasthenic. The question of treatment is the great point. What shall be done in these cases. From the medical standpoint all such cases where the diagnosis of appendicitis or other abdominal inflammatory conditions is questionable or where it is fairly well shown that there is no inflammatory condition should be put on a diet which will fatten them, on rest that will keep them out of the turmoil of society, and a vast majority will clear up under that sort of treatment, but there still remains a certain proportion which does not clear up under such conditions. Tell the patient you are in doubt about the diagnosis. If you are a surgeon tell the man who sent you the patient that you are in doubt about the diagnosis, but the safest thing to do is to make an exploratory operation because with all our careful diagnoses there are a number of cases of inflammatory conditions which do give rise to pain in the right iliac fossa without the usual physical signs. It is a great deal better to open the abdomen and find nothing than to allow an old gallstone or a diseased appendix to remain with a possible serious result.

Progress of the Mind.—The march of the human mind is slow.—Edmund Burke.

PLASTIC AND RECONSTRUCTIVE SURGERY *

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Modern surgery is so vast a subject that no man can master it in all its branches. For this reason it has been necessary from time to time to separate, from general surgery, special branches which demanded special training, and better facilities for their full development. After a number of years' experience in plastic surgery I feel that the time has come for the separation of this branch from the general surgical tree.

The object of this paper is to advocate the special development and teaching of plastic and reconstructive surgery by those interested in it and trained for it.

I have heard many busy general surgeons say, "I do not like to do plastic cases, as they take too much time and require so much attention." These men will welcome the advent of the surgeon who is willing to devote his time to plastic work.

By plastic and reconstructive surgery I mean that branch of surgery which is distinctly formative or reparative. It deals with the repair of defects and malformations, either congenital or acquired, and with the restoration of function and improvement of appearance. This is accomplished chiefly by the transfer of tissue, either from the immediate neighborhood or from some distant part.

The deformities dealt with in plastic surgery for the most part involve the skin or adjacent soft parts, rather than the bones and joints, the ligaments or tendons.

The healing of large denuded surfaces, and of intractable wounds, should also come under the care of the plastic surgeon. The field of plastic surgery is a broad one; the cases are numerous, and of varied types.

Orthopedic and plastic surgery approach each other quite closely in certain cases, but my experience has been that the orthopedic surgeon is glad to turn the plastic cases over to the plastic surgeon, and vice versa.

There is no single group of surgical cases which are more consistently "botched" than those requiring plastic and reconstructive surgery.

Plastic surgery is done by nearly every general surgeon in his routine work, and is often attempted by eye, ear, nose and throat specialists, and by those physicians who "operate only occasionally." I do not believe that it should be done as a routine by any one of these groups of operators.

It is well known that if any surgeon is interested in a special line of work, and gives his attention to it, he will in time be able to do this work better than the one who operates in these cases only occasionally.

It is imperative that the surgeon who expects to do plastic and reconstructive work should have a thorough general surgical training before attempting to specialize in this branch. Above all he must know, and thoroughly appreciate, the principles covered in the healing of tissues, and in the repair of wounds.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

A special knowledge of the resistance and utility of tissues more or less infiltrated with scar tissue is also necessary, as in many instances normal tissue is unavailable. A knowledge of the surgical handling of children is very important.

Thorough familiarity with the free transplantation of skin, fat, fascia, bone and cartilage is essential, as all of these tissues are constantly utilized in reconstructive work. The principles of tissue shifting, and of the use of pedunculated flaps, must be understood, and also the possibilities of combinations with the above mentioned free transplants. An accurate estimate of immediate and subsequent tissue shrinkage must be planned for.

This work should not be undertaken unless one has a definite aptitude for it. A certain amount of imagination is also a very helpful adjunct.

To sum up the whole matter, in the words of Sir Frederick Treves,[1] "No branch of operative surgery demands more ingenuity, more patience, more forethought, or more attention to detail."

My experience has been that we seldom, if ever, find two plastic cases exactly alike, and thus no "cut and dried" methods can be employed. This endless variety in itself brings a certain fascination to the operative treatment, and to the after-care of these patients.

Each case requiring a reconstructive or plastic operation should be carefully studied, and the various methods of repair considered from every standpoint.

Keen surgical judgment is often necessary to determine what should be done; whether or not a plastic procedure should be finished at one operation; how far to go in the initial operation, and when to follow with the secondary procedures.

The results in certain groups of cases are very slow, and in these the process is one of gradual building up; in such cases the entire series of operations should be planned with regard to the ultimate result, and not to the immediate relief of the condition. For example, in some instances I have been able to gain only a fraction of an inch at a time in shifting flaps where the blood supply was doubtful.

The postoperative treatment and dressings should be done by the surgeon himself, or directly under his eye, as successful results in a great measure depend on skilful and judicious after-treatment.

I am sure that all of us have seen patients with severe contractures following burns operated on in various clinics, with the result that at the completion of the operation the patient presented a perfectly sutured wound rivaling in appearance the schematic figures in the textbooks; and yet if these cases are followed in the wards, it is not uncommon to find that the beautifully sutured flaps, in which all the available material for repair has been used, have sloughed. Here, then, not only has the original condition not been bettered, but there has been superadded a disadvantage to the patient, and to the surgeon to whom he may drift later, that all the material useful for the repair has been wasted, and a longer and more tedious process has to be undertaken, with less likelihood of a good result.

In so many published reports of plastic cases, especially on the face, one is struck by the fact that while the original condition may have been rectified, the scar left by shifting a flap is as disfiguring as the original defect or even more so. Such a result, in many instances, shows poor judgment on the part of the operator, as the aim of the plastic surgeon must always be to repair the deformity with the least possible scarring of the surrounding tissues.

The purpose of surgical intervention in any branch of surgery should always be the cure of the patient. The primary consideration, first, last and all the time, must be the patient. This fact is sometimes lost sight of in the desire to operate.

If a patient with a certain type of lesion requiring surgical treatment comes to a surgeon who has not had special experience in the operative treatment of that particular trouble, it is the duty of that surgeon to refer the patient to some colleague who is known to be skilled in that treatment. This may not be "good business," but it is certainly for the best interest of the patient, and furthers true efficiency.

In reconstructive surgery on the jaws and palate, the plastic surgeon should have the cooperation of a skilled dental surgeon. This combination has proved to be of inestimable value in France, and also in Germany, where the attempt has been made to concentrate as far as possible in certain hospitals those of the wounded who require reconstructive work on the face.

The plastic surgeon, with his special knowledge of tissue transplantation, can be of great use to the general surgeon and to the orthopedic surgeon in repairing the defects left by certain necessarily mutilating operations. This also applies to the gynecologist and genitourinary surgeons, when called on to perform more extensive transplantations than these surgeons are accustomed to undertake.

The aim of the plastic surgeon is the relief of pain and deformity, the restoration of function, and, last but not least, of the ability to earn a living.

One occasionally hears the term "beauty doctor" applied to those doing plastic surgery. Although this term may have some foundation, as a matter of fact a very small part of legitimate plastic surgery is done for cosmetic reasons only. A number of patients have been under my care who previously were unable to secure even the humblest position on account of hideous facial deformities, and who, having been rendered presentable by a series of plastic operations, are now making a good living. If this is being a "beauty doctor," the title is worth while.

The tendency of modern surgery is toward increased efficiency, and anything that will improve results and advance the knowledge of surgical treatment should be given every possible opportunity for development.

It is only within the last few years that the surgeons especially interested in orthopedic surgery, in genitourinary surgery or in cranial and nerve surgery have been allowed the necessary freedom required for development, and every one knows the wonderful advance which has been made in these branches.

In answer to the objection in certain clinics to any further splitting of the general surgical service, the following quotation may be of interest:

> The problem of establishing special surgical services in large general hospitals is always difficult, on account of the inevitable and natural feeling on the part of the general surgeons that such a procedure takes from them opportunities which are legitimately theirs. At the same time it is imperative that such services should be established, on account of the best interest of the patient, of medical education and of those surgeons who are devoting their time

1. Treves, Sir Frederick: Manual of Operative Surgery, ii, 104.

and energy to the acquirement of expert skill in special branches of surgery.[2]

Any progress in any subdivision of a general surgical service redounds to the credit of the whole surgical service, as well as to the special branch in which the advance is made. This fact is occasionally forgotten.

After this brief outline of the subject the question arises, Is the field of plastic surgery large enough and interesting enough to justify a surgeon in specializing in it? For myself I can answer unqualifiedly that it is. Furthermore, I believe that it is only a matter of time, and that the time is rapidly approaching when there will be created in every large surgical clinic a department of plastic and reconstructive surgery, under men especially fitted and trained for this work. Which clinic will be the pioneer in putting this important branch of surgery on an efficient and progressive basis?

ABSTRACT OF DISCUSSION

Dr. Emery Marvel, Atlantic City, N. J.: Dr. Davis's successes are due to his perfect technic, which ingrafting demands. The general surgeon relaxes and in many cases, perhaps, does not fulfil his whole duty. A man whose colon had been removed for malignancy and who was subsequently roentgenized, found himself with extreme destruction of the abdominal wall. The condition was so severe that he was incapacitated, but he refused operative procedures. From the anterior superior spine on the left to the anterior superior spine on the right below and the costal margin on the right to 2 inches above the costal margin on the left was a window, including the skin, the fascia, and the right rectus muscle. Dr. Davis covered these immense areas with skin grafts and when I saw the man afterward, the epithelial repair was nearly complete and after six weeks the defect was entirely closed. The testimony is as to the extreme area in which successful skin grafting has been obtained. The average surgeon would not give sufficient time and attention to this work; hence it should be done by the specialist or one who has the patience for such a tedious procedure.

Dr. James Savage Stone, Boston: No branch of surgery requires more patience and detailed attention than plastic work. It requires also a very broad knowledge of the underlying principles of general surgery. There are two great groups of plastic work. The first deals with the various congenital malformations and defects; the second, with the results of trauma. In dealing with the congenital malformations there must be a thorough knowledge of the surgery of children and any one who undertakes the surgery of children must of necessity be able to treat well the various congenital defects, among which hare-lip and cleft palate occupy conspicuous places. A knowledge of the laws of growth is essential, especially of the growth of bone. Not only must we take account of the normal epiphyseal growth of bone, but also of the fact that bone grows to meet the demands that are put on it. There is no more striking example of this than the growth of a fibula which is transplanted to take the place of a lost tibia. This is a fortunate example of what nature can do to help the surgeon. The cessation of growth of the bones of the upper jaw and of the central part of the face may be a most unfortunate result of unwise operative interference with growing bone in operations for cleft palate. All these principles and many others must be understood in work with children.

Within the next few years there is going to be an immense amount of reparative work as the result of the war in Europe. Today the wounded men are constantly going back from the battlefields to the different hospitals in the big cities. When their primary wounds have healed so that they have become fit subjects for reparative work, and when the surgeons who now are more than occupied with the urgent life saving measures are more free, then the immense opportunities for reconstructive work will give those interested in this branch wonderful chances for study and teaching. Reparative surgery will become a part of the general medical preparedness of which we hear so much now. The immense amount of work to be done, and the facilities for study and for teaching will give to plastic surgery an even more important position than that it now holds.

2. Surgical Specialties in Hospitals, editorial, Boston Med. and Surg. Jour., Dec. 2, 1915, p. 859.

CONJUGAL PARESIS

REPORT OF A CASE *

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Paresis (dementia paralytica, general paralysis of the insane) is a progressive, chronic and incurable malady possessing a highly characteristic symptomatology which concerns the motor and psychic functions. It eventually annihilates intelligence, disrupts the personality and chooses for its victims vigorously constituted individuals who have not previously been afflicted with mental disease. The sole cause is syphilis.

At the onset, the alterations in the psychic life may occur so insidiously as to be practically unnoticed by friends and relatives. A skilled observer, however, even in the absence of physical manifestations, will readily interpret such early signs as failing attention, sluggishness of thought, dampened perceptive acuity, tiresome reiteration, unmotivated gaiety, erratic conduct, etc., as forerunners of this disastrous disease.

In not a few cases the first warning may appear with the ferocity and unexpectedness of an earthquake—an actual mental cataclysm. When the disease is ushered in so acutely, the patient is apt to run amuck and give way to violent impulsions. Often a history of recent alcoholism complicates the situation. A serologic investigation of the blood and spinal fluid will, of course, make the differentiation.

The disease, irrespective of the mode of onset, pursues a more or less irregular course which culminates eventually in a state of permanent dementia—that final wreckage of mind which permits of no opportunity for salvage.

In early years, paresis was pictured as an organic brain disease which had for its early manifestations grandiose ideas and extravagance of conduct. With the advent of the Wassermann era and the newly acquired knowledge and improved diagnostic methods which resulted, it became evident that many cases were improperly classified because the individual had not at some time exhibited symptoms of exaltation and grandeur. Today our interpretation of the malady has greatly changed, and it is now customary to recognize three clinical types, namely, the exalted, the hypochondriac and the demential. The exalted and hypochondriac forms are encountered more frequently among the professional and cultured classes; the demential type appears to predominate in women and among those of the poorer classes.

The course of the disease, while progressive, is subject to remissions which have always proved deceptive to the unknowing. These periods of arrest of symptoms may last for months, and in a few cases for several years. Many patients during these "temporary respites" cherish the belief that a genuine convales-

* Read before the Section on Nervous and Mental Diseases at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

cence is at hand, and are often permitted to return to business and look after their personal affairs. This, at best, is always a dangerous procedure, as remissions may end abruptly; and if the unfortunate victim is not properly safeguarded, he may dissipate his funds or indulge in conduct which might prove troublesome and costly.

Leading serologists are quite agreed that paresis continues to be a hopeless and incurable affliction. Long continued investigations have disclosed the interesting information that the central nervous system, in these cases, is structurally damaged soon after the invasion of syphilis, and usually years before a physician is consulted. If this is true, the prospect of obtaining a cure for this tragic disturbance is certainly dark. Yet there are some among us who, in spite of the best information on the subject, have become "specific therapeutic enthusiasts," so to speak, and are subjecting well established cases of paresis, under the guise of cerebral syphilis, to intensive salvarsan therapy, and are interpreting ordinary remissions as evidence of their curative skill. Apparently these "alleged" cures are not long lived, as it is becoming quite a commonplace experience to examine patients in an advanced stage of the disease who had just previously passed through an ordinary remission following a course of intravenous or intraspinal medication.

Convulsive seizures occur in fully 60 per cent. of general paralytics. It may happen that the symptoms hitherto slight may become greatly intensified after a convulsion. In other instances, the subsidence of a seizure may mark the beginning of a remission.

The disease confines itself largely to the male sex in the proportion of about 9: 1, and makes its appearance usually when the individual is in his prime. The average age of onset is 40 years, and the period of time that intervenes between the infection of syphilis and the development of paresis ranges from two to twenty-five years. Not more than 50 per cent. of the patients admit syphilis, or are aware of having contracted it. Ten per cent. of patients admitted to state hospitals are afflicted with dementia paralytica.

Hereditary syphilis may also lay the foundation for paresis, and it is apparently the usual cause of the infantile or juvenile forms of the disease. Reports of over 100 such cases have been collected.

Fortunately not every syphilitic becomes a paretic. In fact there are in some countries much syphilis but little paresis. In Algiers, for instance, where fully 60 per cent. of the natives are syphilitic, progressive dementia is a rarity. The disease, therefore, requires other elements to bring out its development, and to cover this point, von Krafft-Ebing coined the now famous phrase "civilization and syphilization." Perhaps it may prove, as in the case of malaria, that certain strains or species of the micro-organisms are the true cause of the disease.

Paresis has been observed in a case of a mother and child (Hoch) and in brothers (Collins, Oppenheim). The case of two brothers reported by Collins of New York is especially interesting, as the two boys attended college at the same time, and both have been suspected of contracting syphilis from the same source. Husband and wife may also become afflicted, and it is this phase of the disease which constitutes the subject of my thesis.

If the literature on the subject is a criterion, paresis appearing during the lifetime of both husband and wife is an extremely rare condition.

The "Index Catalogue of the Library of the Surgeon-General's Office, United States Army," makes no direct reference to any cases which may have occurred in the United States, but it does have a record of a few cases which have been reported in foreign periodicals. These, briefly, are as follows:

CASES IN THE LITERATURE

Laignel-Lavastine and Mercier presented the following case to the Society of Psychiatry in Paris, Nov. 21, 1912:

The wife, aged 39, an actress, had impairment of memory, megalomania, dementia, tremors of hands and lips, dysarthria and fixed pupils. Serologic examination disclosed a positive Wassermann reaction on the spinal fluid with increase of albumin and lymphocytosis.

The husband, aged 27, had less marked symptoms. Memory was not impaired, but there was a decided change in personality. Reflexes were responsive except the pupils, which were contracted and immovable. Dysarthria prevailed, and leukoplasia of the corners of the mouth was noted. The spinal fluid showed an increased albumin content, and the Wassermann reaction was positive.

These authors express the view that conjugal paresis is not altogether uncommon, but that few cases are reported because the symptoms do not develop in the husband and wife at the same time.

Ferenczi[1] publishes the report of a case of dementia paralytica in a man and cerebral syphilis in the wife. Both denied having ever contracted syphilis, and no clinical lesions were found in either patient.

The husband, aged 44, presented pronounced dementia, incoherency of speech and action, exaltation, rhombergism, and exaggerated deep reflexes.

The wife, aged 44, suffered with paralysis of the motor oculi nerve of the left eye and paresis of the facial musculature. The case was reported prior to the Wassermann era, and the author inferred that because the wife was syphilitic the husband also must have contracted the disease.

Garnier and Sautenoise[2] state that the object of their communication is to point out that syphilis is the cause of paresis, and they cite a case of a man and wife. The husband was syphilitic for twelve years and the wife for ten years. Both developed paresis and both were the offspring of psychopathic progenitors.

Sipocz[3] reports three cases of conjugal paresis and one of taboparesis occurring during his eleven years' service in the psychopathic clinic in Budapest.

Junius and Arndt[4] have collected among several thousand cases of paresis and tabes in the Anshalt-Dalldorf, during a period of twenty-five years, thirty-eight cases among man and wife. In seven cases, six men had paresis and one wife tabes, in one case, vice versa. One man was married twice. He too was a paretic. With his first wife he had one daughter who developed paresis at the age of 24. The wife finally became tabetic. The second wife was delivered of two stillborn children, and she also developed tabes.

AUTHOR'S CASE

The case which I report concerns a man and wife, both of whom are living and inmates of the same institution. Both are afflicted with paresis, which now is in the terminal or advanced stage.

THE HUSBAND

G. L., German, aged 40, a paper ruler by occupation, was first examined, Sept. 1, 1913, in consultation with his physician, Dr. John Neuberger. The patient was a man of moderate stature but poorly nourished, and was somewhat emaciated. His ancestral history proved negative so far as his present condition was concerned. No inherited psychopathic taint was disclosed. His father died of pulmonary

1. Ferenczi, A.: Budapest. Konijl Aerzte-Gesellsc., 1903, xvi.
2. Garnier, S., and Sautenoise, A.: Reflections on a Case of Conjugal Paresis of Syphilitic Origin, Arch. neurol., 1905, xix, 110.
3. Sipocz, G.: Orvosi hetil., 1908.
4. Junius, Paul, and Arndt, Max: Monatschr. f. Psychiat. u. Neurol., 1908, xxiv, 10.

tuberculosis at the age of 62. His mother and one brother died of organic heart disease, the former at the age of 52 and the latter at the age of 43. Two brothers and one sister are alive and well. The patient was the youngest of a family of five children. As a lad he was healthy and robust. He attended public school until he was 15. Then he went to work as a book binder and later as a paper ruler. He was a hard working, thrifty and industrious man and was considered healthy and strong. At the age of 27 he married.

In July, 1913, his wife noticed an unaccountable change in his temperament. In health he was reserved but most indulgent, affectionate and thoughtful. Now he was hateful, indifferent, and wished to be left alone. The condition was regarded as a "nervous breakdown" by his relatives. Sept. 1, 1913, he was obliged to give up his work, being no longer able to apply himself, and making many mistakes. His employers urged him to take a prolonged rest. This seemed to distress him, and he became quite agitated and disturbed. For hours he would hold his head in his hands and constantly bemoan his fate. He could not sleep; he walked the floor at night, and finally the wife came to realize the seriousness of the situation.

The physical examination disclosed total abolition of the patellar reflexes, tremors of the closed eyelids and separated fingers, fixed and contracted pupils, dysarthria, instability of gait and moderate emaciation. Mentally he was confused and distinctly apprehensive. Many of his answers were incoherent, and he was suspicious of his family. His wife's well intentioned solicitations were angrily repulsed, and he insisted that she leave the room. During her absence he voluntarily told us of having contracted syphilis in 1898. He consulted a physician, and soon thereafter considered himself cured, as all symptoms had rapidly disappeared. Two years afterward, 1900, he married, and finally came face to face with the cold truth that a cure was most unlikely, and that there was great danger of his having transmitted the disease to his wife and child. He further stated that he had carried his "secret" single handed during all these years, and had been hoping against hope that no harm had resulted from his folly and indiscretion.

A provisional diagnosis of dementia paralytica was made, and a specimen of his blood obtained for serologic investigation. Before this was completed, the patient became quite disturbed and boisterously incoherent. He could not be quieted, and assumed threatening attitudes toward the members of his immediate family. Sept. 4, 1913, it was necessary to arrange for his commitment to the Cleveland State Hospital. The result of the Wassermann test was finally reported as positive, four plus.

Since his admission to the institution the disease has pursued a progressive course with few slight remissions. At various times he has suffered with convulsive seizures, some of which were quite severe and prolonged. He is now markedly demented, stupid, untidy, resistive and partially bedridden.

The diagnosis is dementia paralytica (paresis). The Wassermann reaction is: blood, plus four; spinal fluid, plus four. The cell count is 28.

THE WIFE

H. L., a native of Ohio, aged 36, consulted me a short time following her husband's adjudication. Both her grandparents died of senility. Her father died of a complication of diseases, aged 50. One sister died of chorea, aged 30. Her mother and one sister are living and well. All the members of the family, including herself, were unmistakably neurotic. She suffered the usual diseases of childhood but developed normally. At school she was active and alert, but not especially vigorous or robust. Menstruation first appeared at the age of 13 and has since been normal. At the age of 23 she married. The family life was all that could be desired, and the man was at all times a devoted husband and father. She had known him from early childhood, and had every reason to believe that his habits were exemplary; in no manner was he given to excesses. The patient further informed me that she suffered a miscarriage shortly after her marriage which necessitated a curettement of the uterus. An uneventful recovery followed.

At this point I suggested to her the advisability of submitting to a thorough examination, but this she deemed wholly useless as her health was good. It was then explained that her husband was afflicted with a specific disease, and it was most essential to determine whether or not the disease had been transmitted to her. She refused to consent, and left the office apparently under the impression that I was mistaken in considering her husband's condition incurable. It was also evident that she questioned the cause of his invalidism.

I saw nothing more of this woman until May, 1915, when she returned complaining of nervousness, insomnia and numbness in both lower extremities. She had been visiting her husband regularly at the hospital, and this had greatly depressed her. His condition had grown gradually worse, and he was now a patient in the "infirm" ward. A specimen of her blood was secured for serologic investigation, and this disclosed a positive reaction for syphilis. Treatment, however, was still refused; in fact, she assumed an attitude of total indifference, and declared that she no longer cared what became of her, as there was nothing left to live for.

Two months afterward, July, 1915, I was summoned to her home and found her quite excitable, erotic and rambling in her talk. The pupils were contracted and fixed, the left patellar reflex abolished, the gait quite ataxic, and considerable dysarthria prevailed. She had no recollection of what had transpired the day before, and seemingly had no insight into her condition. Specific medication was pushed, and in a short while all mental manifestations abated and she was quite herself again. Her regular visits to her husband were resumed, and she invariably insisted on making the journey alone.

From this time on her conduct was noticeably irregular, and she became ill at ease with those who were near and dear to her. She neglected her daughter, avoided meeting people, and lost much of her former pride and neatness of appearance. Oct. 14, 1915, I received a message stating that the patient was found wandering about the hospital grounds, and requested that the family be notified. Arrangements were made for her return to the home, where I saw her the following morning. I hardly knew her when I called, as she had lost much in weight, and was profoundly confused and incoherent. During the afternoon she became quite maniacal, and the relatives, finding themselves unable to cope with the situation, took the necessary steps for her commitment to the Cleveland State Hospital.

According to the hospital records the progress of the disease has been exceedingly rapid, and at present she is almost as deeply demented as her husband who was admitted two years previously.

The diagnosis is dementia paralytica. The Wassermann reaction is: blood, four plus; spinal fluid, four plus. The cell count is 30.

THE CHILD

In November, 1915, I had an opportunity of examining the daughter, who was then 8 years of age. She was of slender stature and poorly nourished. She told me that she felt well and was progressing nicely at school. Her aunt, who accompanied her, intimated that she was subject to "colds" and had periods when her appetite was poor. She had never been seriously ill, however, and had exhibited no signs of nervousness.

The clinical examination was practically negative, and no objective neurologic manifestations were elicited. Her mentation was normal, her memory was faithful, her attention good, and her ideas were expressed coherently and connectedly. Temperamentally she was quiet and reserved. The special senses were intact and the eyegrounds were negative. A specimen of her blood was submitted to a Wassermann test, and this was found to be positive for syphilis.

The condition of the child has been made known to the relatives, and the responsibility of her future care now rests with them.

COMMENT

This case presents some very interesting features. The father and mother are now hopeless invalids as the result of the ravages of syphilis. Their only daughter has inherited the disease, and no one can prophesy what her future health will be. The husband contracted syphilis two years prior to his marriage. The symptoms were slight and quickly subsided after a brief period of treatment. Eighteen years of syphilis preceded the development of paresis in his case.

Unquestionably he infected his wife, but just when no one can say. She did, however, become a paretic two years after her husband, who was syphilitic two years before they were married. It would be interesting in this connection to know if the number of years of syphilis preceding the appearance of paresis was the same in husband and wife.

The disease in both cases was of the demential type, and at no time during my observation were there any signs of exaltation or grandeur.

According to the literature, cases of conjugal paresis are rare; but it has seemed to me that members of this section whose experience has been more extensive than my own must surely have encountered conditions of this sort.

Rose Building.

ABSTRACT OF DISCUSSION

DR. JULIUS GRINKER, Chicago: This report brings up a number of reflections on the subject of syphilis and parasyphilis. Many of the ideas in connection with this subject are still hypothetical and in need of further proof. However, clinical reports such as this one seem to throw some light on the problem. For instance, why should the wife contract general paresis and not tabes? It appears as though there might be a special strain of these spirochetes which produce a certain nervous disorder of the tertiary or of the quartenary, or, as it is now called, the parenchymatous type of syphilis of the nervous system. This fact was very strongly brought to my mind when in 1903 I had occasion to study an entire family of syphilitics, most of whom, with one exception, had developed parasyphilis; this exception was the father, who died too young to develop any form of nerve syphilis and whom I had not examined.

The case was this: A man who had contracted syphilis married a woman who had previously been married and as a result of her first marriage had had a healthy son, who later had a healthy family. The first result of this second marriage was the birth of a boy, who early developed normally, attended college, and later entered a countinghouse, doing work satisfactorily. At about 19 years of age he developed juvenile paresis and died. The second child, a daughter, had all the evidences of hereditary syphilis on her body, snuffles and Hutchinson's teeth, but went on to womanhood and then developed an attack of right-sided hemiplegia with aphasia and in addition was the subject of a gummatous meningitis, as I determined on postmortem examination. The third offspring, a boy, developed symptoms of tabes early, with incontinence of urine and the peculiar difficulties that go with hereditary juvenile tabes, until at 19 there appeared an optic atrophy, causing total blindness, but very little ataxia. So slight was the ataxia that the patient could easily find his way through Chicago's busy thoroughfares, having made his living by peddling newspapers. The mother developed optic atrophy and tabes. There is no doubt that all had contracted the disease from the father.

It seems to me that the family tendency may have less to do with the variety syphilis will assume than the fact that there are different strains of one and the same organism. In consequence, we are beginning to believe that there are several strains of spirochetes, and the case reported by Dr. Drysdale would tend to support that theory. Referring to our new treatment of syphilis and whether intravenous salvarsan injections or intracranial injections are preferable to the old method of administering mercury and iodids, only time and more experience will decide.

DR. JOHN MATTHEW PULLIAM, Fort Wayne, Ind: I have under observation at present a man who contracted syphilis twenty years ago. He is not married, but has had relations with a woman and presumably they have a child. This man is paretic; he is now undergoing a remission. The woman is paretic, and the daughter, now 17 years old, is paretic. The mother thinks the child is by this man, but is not certain. In regard to the spirochetes, I do not know that it is a question of strains. Tuberculosis manifests itself in many different forms: tuberculosis of the lungs, of the glands, and of the bones. So why could not syphilis affect the brain in a certain individual, in another individual of that family attack the cord, and so on down the line? We could have any part of the body affected and perhaps at the point of least resistance. I think this idea would be more logical than to say that there are different strains of the particular organism. I presume there are, and yet the disease might attack a point of least resistance where the conditions were more favorable to the spirochetes than in any other locality.

DR. LAWSON G. LOWREY, Hathorne, Mass.: We have had in the state hospital three members of one family, father, mother and daughter. The mother developed paresis first, then the father, and then the daughter came to us, not for paresis or any syphilitic disorder, but because of what appeared to be a state of manic depressive insanity. She, however, had a positive blood Wassermann. The mother eventually died and necropsy substantiated the diagnosis of paresis. The father and daughter are still in hospitals, but have been transferred. The father is of excitable type, and it is rather common that people of this class live longer than the more quiet ones. As to whether or not the nervous system is the locus of minor resistance, or whether different strains of spirochetes operate to produce paresis, there is evidence in both directions. It is a problem that must be solved experimentally, one on which a considerable amount of experimental work is now being done, and I believe that at the end of three years we shall know more about the subject than we do today.

DR. C. C. BURLINGAME, South Manchester, Conn.: In view of the work reported by Reasoner, it would seem that there is little doubt as to the existence of distinct strains of the organism. Dr. Reasoner took some twenty strains of the organism and experimentally produced syphilis in rabbits. He found, say, that Strain No. 5 produced a certain lesion of the eye; Strain No. 10, no matter how frequently repeated, never produced those symptoms of the eye. In brief, he has taken certain strains of the spirochetes and produced certain definite lesions which could not be produced with other strains of the organism.

DR. DAVID S. BOOTH, St. Louis: There came under my observation a family consisting of a wife and her two husbands, which I wish to report briefly since I do not know how much may have been sequence and how much coincidence. I was brought into the family to examine the second husband, making a diagnosis of paresis, when I learned that the first husband had been confined for the same disease and had committed suicide in the insane asylum. The second husband was committed to the asylum, and several years after, the wife was also committed to the hospital in the same condition. And one of these two committed suicide; I do not remember which.

DR. WILLIAM RAVINE, Cincinnati: In 1912 I saw a woman brought into the Anton Clinic at Halle a. S., in a state of depression with the physical and serologic findings of paresis. About 15 years before her admission to the clinic her husband was brought in with the diagnosis of paresis; he was sent to the state insane asylum and died of paresis. This woman married two years after the death of her first husband, and eight years later her second husband developed signs of paresis, was brought into the clinic, and subsequently sent to the asylum. He was still alive on her admission. Permission was obtained for the performance of brain puncture of husband and wife, and the typical lesions were produced

in the eyes and testes of rabbits. In a recent study of about 75 children of paretics, I was astonished to find that but one child showed evidences of hereditary syphilis, and but two gave positive Wassermann reactions in the blood; spinal punctures were not made.

DR. W. F. LORENZ, Mendota, Wis.: We make it a practice to examine relatives of paretics in the Mendota and Northern Hospitals. A large number of children have been examined, and less than five per cent. have shown a positive Wassermann. As a rule, they appear normal and bright, and, in fact, most of them are healthy and good-looking.

DR. CHARLES R. BALL, St. Paul: I recently had under my care the daughter of a paretic, age 17. The Wassermann test was negative. On two occasions the luetin test has been positive. This young woman is extremely nervous and erotic and seems absolutely devoid of any moral sense or responsibility so that at the present time she has to be watched constantly. She is extremely immoral and does not hesitate to steal or forge checks, and when confronted with her misdeeds manifests no sense of shame or remorse. There is no doubt but her moral void is an effect of the syphilis of her father. She might be properly classified under the cerebral palsies. The difference is simply one of localization; in this case the moral zone was damaged instead of the motor.

DR. GEORGE H. MOODY, San Antonio, Tex.: For many years I have been observing children of paretics rather closely and have made Wassermanns on some of them. This observation leads me to believe that children of syphilitic parents whose syphilis has existed for a long time are much more likely to appear normal and not so prone to present degenerative signs of hereditary syphilis as are those children whose parents have recently contracted syphilis, indicating that if an individual has had syphilis perhaps the time elapsing since contraction of the disease is the most important element in modifying the severity of the infection.

DR. S. G. BURNETT, Kansas City: I have as patients four brothers, each having paresis, the ages being 26, 30, 36 and 40 years respectively. Each gave an individual history of having contracted syphilis. The son of the oldest, at the age of 17, contracted syphilis and five years later developed paresis, the five patients contracting syphilis from different sources and all having paresis. It is hardly likely that the one strain of infection would be contracted by all these individuals. So the question is whether we have a special strain producing the same condition in different individuals derived from different sources, or whether we have the infection attacking the tissue which is most liable to be involved in the process.

DR. ROBERT HENRY HASKELL, Ionia, Mich.: At the State Psychopathic Hospital, Ann Arbor, for several years we took the blood reaction of wives or husbands of paretics and likewise of the offspring, if any. While we found that about 40 per cent. of the conjugal mates of paretics had a positive Wassermann, the percentage of positive reactions in children was very small, less than 10 per cent. I believe. In fact, these children were, as a rule, good-looking and bright. As you go through the family history in these cases you find that the number of deaths of children in early life is excessive, so that while the census for the state of Michigan shows about three living children in each family, in the families of eighty-four paretics we found on an average less than one living child in the family after an average married life of eleven years. It seems to me that why most of the children of paretics fail to show a positive reaction is that the actually infected ones have died young. Hauptmann lays great emphasis on the differences between actual hereditary infection with the spirochete and syphilitic intoxication of the germ plasm, a distinction which I believe we must keep clearly before us.

DR. GEORGE A. MOLEEN, Denver: About seven or eight years ago a woman was taken with apoplectiform seizures, in which there was introduced a type of paresis of the dementia class with confusion and other symptoms of the condition, which progressed, and in about four and one-half to five years she died in an institution. At about the time of her death the husband began to show definite signs of a paretic type with loss of reflexes and some incoordination, however, with the tremor and then with the apoplectiform seizures, of which he has had two, without suffering a dementia, and only since the apoplectiform seizures has he had some confusion. Neither case, in fact, showed optic disturbances in the form of atrophy, but both presented the pupillary phenomena. The child of this conjugal relationship was a definite, simple-minded imbecile of rather a higher grade type. He presented the evidences and the stigmata of degeneration. With a little assistance he would probably be able to make his way in the world and help himself, but I doubt very much whether he will make any progress alone.

With reference to the strains: Many theories have been advanced, from the neurotropic theory of the French, and the symbiotic view of the influence of other organisms on the spirochete, as well as a selective affinity on the part of some nervous systems for the neurotic influence. Yet, as has been said, it will take time and judgment before we can arrive at definite conclusions as to whether or not there are such strains, even in spite of what would seem to be very good evidence at the present time.

DR. HARRY H. DRYSDALE, Cleveland: The condition does not seem to be as uncommon as the literature on the subject would indicate. It is to be regretted that these cases have not been reported. In my experience also, in the examination of children of paretics not more than one in ten gives a positive Wassermann. It is surprising that in examining children of parents afflicted with some form of syphilis, the Wassermann test is so frequently negative. I am extremely glad that I have reported this case as it has brought forth, in discussion, some very interesting and valuable points.

A BACTERIOLOGIC STUDY OF THE CAUSES OF SOME STILLBIRTHS

PRELIMINARY REPORT

JOSEPH B. DE LEE, M.D.
CHICAGO

Thirteen years ago, in consultation, I saw a child of a healthy mother born with a temperature of 101, which within a few hours rose to 103. The child died of streptococcus septicemia, the mother showing no signs of infection. A year later, a physician's wife, after a mild pharyngitis, developed albuminuria and eclampsia. Artificial delivery was performed. Out of the child's nostrils pure pus exuded. The pneumococcus was found in it.

Several other cases have indicated to me that the child can become ill, independently of its mother, and may even die, the mother being only indirectly affected, or not diseased at all.

CASE 1.—Mrs. F. H., primipara, who had always been well, and who was pregnant eight months, had a slight pharyngitis. A few days later the motion of the child ceased. Anemia and mild asthenia were observed, but no fever. Four weeks later labor came on. A macerated fetus was delivered. The organs contained a pure culture of *Streptococcus viridans*. The mother had postpartum hemorrhage, requiring the use of a tampon. A fever of thirty-six hours' duration subsided without complications.

CASE 2.—Mrs. R. P., who had had septic history in previous labor, and was pregnant seven months, had been well, without fever, but had felt no motion for ten days. There was spontaneous delivery of a macerated fetus. The organs contained pure culture of an anaerobic nonhemolytic streptococcus. Convalescence was interrupted by cerebral symptoms resembling thrombosis.

CASE 3.—Mrs. E. T. W., primipara, had two attacks of gallbladder trouble during pregnancy. Labor began three weeks prematurely. There was no fever. The fetal heart tones disappeared after twelve hours of infrequent, weak uterine contractions. When delivered, the child had just

begun to macerate and was very pale. There was odor to fetus and meconium. Professor Zeit's necropsy diagnosis of the fetus was hemorrhagic septicemia virulenta, and there was a pure culture of pneumococcus. The mother, although the perineum was stitched and the uterus packed, has had no fever or evidences of infection.

Other cases will be reported later, with more complete histories and pathologic findings. The object of this preliminary report is to put these facts on record and to urge other investigations along these particular lines.

I am convinced that this discovery opens up an immense field for study, that we may thus find the cause of many cases of so-called "habitual abortion" and repeated "premature labor after viability and before term," and that we may come on new problems of immunity, focal infections, nephritis during pregnancy, eclampsia, puerperal sepsis, blood-borne transmissions, and new aspects of the transmutations of bacteria.

Many alluring speculations and hypotheses present themselves.

25 East Washington Street.

THE TREATMENT OF AMEBIC DYSENTERY *

JOHN PELHAM BATES, M.D.
GREENWOOD, MISS.

The conclusions following in this paper are from an experience with amebic dysentery in the Department of Sanitation of the Canal Zone in Panama, covering the period from 1904 to 1913 inclusive. During that time various therapeutic measures were tried: First, the treatment with quinin irrigations, a measure carried over from the Philippine service; later, treatment by large doses of bismuth subnitrate, a measure instituted by Dr. W. E. Deeks, and finally, the use of ipecac after its reintroduction by Rogers in India and Dock in this country, to which I subsequently added bismuth as a correlative treatment for the purpose of hastening the process of healing the ulcerations present in the intestine, left only partly healed after ipecac had served the purpose of eradicating the amebas.

Deeks[1] has also pointed out the advisability of using bismuth as an after treatment following ipecac or emetin, but so far I have seen no work of his reporting the results of such a method of treatment. What I wish to lay stress on here is the important point that all ulcers in the intestine must be healed entirely before one can expect permanent results from any treatment, and that one must also expect a considerable lapse of time before this is safely accomplished in cases of such extensive ulcerations as are found in amebic dysentery.

My present interest in the subject of the treatment of amebic dysentery has arisen because of reports in the recent literature of recurrent cases after repeated treatments with ipecac or emetin, and because a small number of recurrent cases have come under my immediate observation.

Judging from my own experience since the revival of the use of ipecac, it appears to me that recurrences ought not to take place, if all of the problems entering into the treatment of amebic dysentery are considered and the treatment necessary to meet these problems is carried out; that is, treatment to aid the action of ipecac as an amebicide, treatment to hasten the complete healing of the ulcerations in the intestine and the allowing of ample time for these ulcerations to heal entirely before patients are discharged as well. In short, a cooperative or correlative treatment to ipecac.

I first began the treatment of amebic dysentery with powdered ipecac in Colon Hospital, Panama, in 1909, and continued its use until 1912. During this time I had a sufficiently large number of cases to form definite conclusions as to results obtained under this method. While it is not possible to follow after-results in all patients discharged from a hospital, I was able to follow some of them, and two of these patients especially. One, a negro, I saw a year after treatment. There had been no recurrence of symptoms during the year, and there were no amebas present in the stools after repeated examinations. The other, a native Panamanian, became an orderly in my wards after his discharge, and was under my immediate observation for two years. He had no recurrence of symptoms during this period. I took the trouble to examine his stools at various intervals, but each examination was entirely negative for amebas. With such results as these two men showed, men belonging to a class of patients low in the mental scale and always unfavorable, I feel safe in assuming that other patients treated in the same manner and discharged as well must also have remained well.

With these facts in mind, I have felt some surprise in noting reports of recurrent cases in the literature and also in encountering recurrences in patients who had had repeated treatments with ipecac, emetin, and alcresta ipecac.

THE CAUSE OF RECURRENCES

Most writers attribute the cause of recurrences to the formation, under the action of the ipecac, of "encysted" forms of amebas. This may be true to some extent, but I hesitate to accept this phenomenon as the sole cause, and am rather more inclined to conclude that as soon as the amebas are reduced below the limit of microscopic detection, all treatment is discontinued, at a time when the ulcerations are only partly healed, and when a few living amebas are no doubt still present, though not detectable, to find lodgment again in half healed ulcers and thus renew the symptoms of the previous attack. I am forced to this conclusion from the history of one of my recent patients, who stated that throughout a period of twelve years he had suffered from numberless attacks of dysentery. In these attacks he had been treated with different forms of ipecac by various men, each of whom had dismissed him as well as soon as his immediate symptoms had disappeared. After variable intervals of time from these treatments, the symptoms had recurred. It may be of interest to note that this patient is now well and has remained uninterruptedly well for a period of seven months after the treatment to be outlined presently. It is from this man's statement and from the lack of any statements in the literature to the contrary that I conclude that the treatment of amebic dysentery as now practiced is incomplete, and that too much dependence is placed on ipecac alone, to the exclusion of such useful correlative treat-

* Read before the Section of Medicine of the Mississippi State Medical Association, May 10, 1916, Greenville, Miss.

1. Deeks, W. E.: Proc. Med. Assn. Isthmian Canal Zone, April-September, 1913, p. 85.

ment as rest, diet, enemas, bismuth, and most of all, time, to complete the healing of the ulcerations in the intestine.

SOME PROBLEMS IN THIS DISEASE

Before entering into the details of what I term "correlative treatment," I think it best to review some of the problems confronting us in this disease. Some of these problems are practical, some more or less theoretical.

One of the practical problems, which is of course obvious, is the destruction of the amebas. This, I think, is largely done with ipecac and hence needs no discussion here. One of the theoretical problems is a biologic property of amebas, namely, symbiosis, which may be discussed with the idea that by taking advantage of this property we can enhance the action of ipecac in destroying amebas. Another practical problem is the pathology of amebic dysentery.

Symbiosis.—It is well known that amebas live and multiply through symbiosis, that is to say, they are dependent on other low orders of life for their maintenance. This is probably accounted for in two ways: First, other bacteria disintegrate food particles in such a way as to make the food available for amebas to incorporate into themselves, and, secondly, in some instances, these lower organisms serve to liquefy their surrounding mediums so that amebas can move and find food held suspended in this liquid, for it is impossible for amebas to live except in fluid surroundings unless they are in the dormant or "encysted" stage. The dependence of amebas on other low orders of life for existence is well shown by the locations selected by amebas in the human economy for their habitat.

Thus we first find the amebas located in the mouth around the teeth and gums, where moisture and bacteria are both abundant. They next pass through the stomach and small intestines in the "encysted" forms, for in this stage they are enabled to resist the deleterious action of the digestive juices and ferments and to find lodgment finally in the large intestine, especially about the sigmoid flexure and rectum. Here again they are favored, as bacteria are abundant, and moisture, though less in amount, is still sufficient. They are no doubt favored again in this location by the comparative stasis of this portion of the large intestine. These "encysted" forms, now finding all conditions favorable, begin anew their normal life cycle by budding or gemmation, the process of "encystment" being a property reserved in amebas to preserve their existence when too closely pressed or menaced.

It appears to me, then, that the knowledge of this property of symbiosis of amebas can be used to advantage in treatment by teaching us to reduce the bacterial flora of the intestine to the minimum and thus place the amebas in an unfavorable condition for reproduction and growth. While it is not expected that one shall be able to destroy all bacteria in the colon, nevertheless I believe that frequent enemas will reduce the number of bacteria to a great extent and thus place the amebas in such an unfavorable condition for existence that their power of resistance will be proportionately reduced, and the effect of the ipecac on the amebas, enhanced in inverse ratio. However, if enemas do not accomplish all one could wish in this respect, they will at least wash away large quantities of surface amebas and hence reduce the amount of work required of ipecac or emetin. From this, then, it is clear that enemas are one of the important factors in the correlative treatment of amebic dysentery.

Pathology.—As I have just stated, the intestinal amebas are located principally in the sigmoid and the rectum. Therefore one would expect to find this area of the large intestine bearing the brunt of attack in amebic dysentery, which is usually the case. But in patients who suffer so severely from the ravages of this disease as to come to necropsy the lesions are far more widely distributed. All the large intestine is invaded, together with the head of the cecum, and ulcerations sometimes extend for a foot or more into the ileum. The ulcers are closely approximated and they frequently erode the surrounding tissue, joining several small ulcers into one large irregular area. They vary in size from that of a pin head to areas larger than a silver dollar. Some are round, some are irregular in shape, nearly all are excavated more or less, and the edges of the mucous membrane tend to roll into the craterlike area. In some places tunnels underneath the mucous membrane connect one ulcerated area with another. The ulcers usually pass through the mucous membrane; some extend down into the muscular coat and have irregular floors. In two instances, I have seen perforations occur; in one of these the perforation took place in the sigmoid flexure; in the other the perforation took place in the cecum. In the more acute cases the mucous membrane is red and very much thickened, but in the chronic forms the mucous membrane is often pale and is thinner than normal and the rugae are largely obliterated. The largest ulcers are usually first in the rectum and the sigmoid, but large ulcers are again noted in the head of the cecum. The latter fact, the tendency for the cecum to bear a heavier part of the invasion than the other upper portions of the colon, I shall refer to again in speaking of occasional cases intractable to all medicinal treatment.

In cases not so severe as to refuse to yield to treatment one would hardly expect such extensive destruction of tissue as that described above. But one must infer, if the case has been of any considerable duration, that destruction of tissue will be rather large and that some of the ulcers must be deep in the structure of the intestine. Therefore, in instituting any kind of treatment for the relief of such extensive ulceration, one must expect a considerable lapse of time before these lesions can heal.

TREATMENT

One of the first and most necessary factors in treatment, whether the case is mild or severe, is complete rest. The patient is put to bed and given a saline purge or castor oil. He is kept in bed until all the acute symptoms have subsided. After the purgative has acted, emetin or ipecac is begun. I usually use one-half grain injections of emetin daily for an adult until two grains are given. I then increase the dose to 1 grain a day and continue until all amebas are cleared from the stool, as shown by microscopic examination. This will usually require a total of from 5 to 6 grains of emetin. If one does not have access to the microscope, it is well to give a total of at least 6 grains of emetin. At this time the emetin is discontinued, and bismuth subnitrate in large dose is begun. Bismuth acts in two ways: first, as a sedative on the intestinal tract and as an aid toward the healing of the ulcers present; second, as was first pointed out by Deeks, bismuth itself acts as an amebicide and is an added help in destroying such amebas as may be left after the discontinuation of the emetin or those that may be formed from the "encysted" stage. Bismuth is usually

given in 1 dram doses every four hours during the waking hours until the stools are well formed, and until some constipation is present. It may then be reduced to 1 dram three times a day until the patient is discharged as well.

Enemas of normal saline solution, 2 or 3 quarts at a time, are begun as soon as the effect of the salts or castor oil has subsided, and are used every four hours during the waking hours, and continued in this quantity throughout the entire period of the administration of ipecac or emetin. They may now be reduced to two or three a day and later to one a day, merely to prevent the constipation following the bismuth. It is well to remember that in flushing the bowel it is necessary to use a short tube in order to avoid the ulcers that may be low in the rectum. At first it will be found that the bowel will tolerate only a small quantity of fluid; it finally becomes more tolerant, and a quart or more will easily be retained. In attempting to examine stools for amebas after these large enemas, it will be necessary to retain the whole stool, that is, the enema and such fecal matter as may be present. Out of this one should select particles of mucus, shreds of necrotic tissue, or flecks of bloody material, and at least six or more separate examinations of this material should be made before one concludes that the stools are negative for amebas.

Experience has shown that sweet milk is the best food in amebic dysentery. It may be given every two hours during the day in quantities of from 4 to 8 ounces at each feeding. After the more acute symptoms have passed and the stools are beginning to be partly formed, the milk may be gradually increased in amount and the time between the meals lengthened. At this stage eggs, soft-boiled or poached, may be added to the diet with one slice of dry toast at each feeding. As the improvement continues, the food may be gradually increased until the patient is finally returned to a full diet.

To carry out this management until one is reasonably sure that all ulcers are healed and replaced by new tissue will require in the acute cases at least four weeks' time. In the more severe cases it will require a total of from six to eight weeks before one should feel safe in discharging the patient as well.

I have stated with confidence that the management just outlined will effect a cure of amebic dysentery, and my experience has proved this to be true in a large majority of all the cases. Nevertheless it must be expected, especially in the tropics, that some cases will be encountered which have advanced so far that no kind of treatment can be of any help. Occasionally there will be others, though rare indeed, that will have relapses in spite of the treatment outlined. It will be recalled that in reviewing the pathology I called attention to the fact that the cecum sometimes seemed to bear the brunt of the attack, and that ulcers often extend well up into the ileum. It is this class of cases that I surmise offer the greatest resistance to treatment, and may present relapses in spite of any management, on account of the inaccessibility of this area to repeated enemas. In cases of this kind, when two or three efforts at treatment by medicinal means have failed, appendicostomy will have to be advised. After this the colon should be flushed out several times a day with saline solution, followed by powdered ipecac suspended in some bland material, such, for instance, as mucilage acacia.

DISCISSION OF CRYSTALLINE LENS*

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The accounts of this operation found in the larger textbooks of ophthalmology are generally unsatisfactory, that of Fuchs being least so. Better descriptions, both as to indications for the operation and technic, are found in special works dealing with ophthalmic operations, especially in Beard's "Ophthalmic Surgery"; and the best description is given under the head "Discission" in the American Encyclopedia of Ophthalmology.

The great variations that occur in the behavior of the eye following this operation, however, are poorly reflected in any condensed account of it. They are best shown by rather full extracts from a series of case histories, six of which are given here with brief comments. In all these cases the needle was introduced through the limbus, as I have described elsewhere.[1] For the first entering of the lens I prefer a rather broad needle, as the Bowman stop-needle, or the medium size of Knapp's knife-needles, which will make a sufficient cut in the capsule by the mere forward thrust. When, however, it is desired to divide the nucleus, I prefer, as for dividing the capsular membrane, the narrow knife-needle of the Hays-Ziegler type. In all cases the eye is placed and kept fully under the influence of atropin, at the time of operation and so long as there is any noticeable reaction. In some cases ethyl-morphin hydrochlorid (dionin) was also used to hasten the process of absorption, after reaction from the needling had subsided. No very marked benefit could be traced to the latter. Sometimes when the eye has become entirely quiet after needling, the absorption of the lens becomes rather sluggish. I then omit atropin, hoping that the action of the ciliary muscle will rather hasten the process of absorption.

CASE 1.—Miss M. D. was first seen April 4, 1903, when 10 years old. She always had poor sight; does not know that it has changed. Vision: Right, $\frac{1}{50}$; left, $\frac{1}{10}$ partly. Never had convulsions; had measles when 5 and typhoid when 9 years old. Teeth sound and well developed, although irregular.

Ophthalmoscope: Each eye shows lamellar cataract, almost complete at the nucleus with scattered "riders" in the cortex. The nuclear opacity is 5 mm. in diameter in the right, 4 mm. in the left. Needling of the right eye was advised but she was not seen again for nine years.

Sept. 5, 1912, eyes but little changed; patient has been in school for four years. Vision: Right $\frac{4}{45}$; left $\frac{4}{12}$ partly. Under atropin, right —7.50 sph., vision equal $\frac{4}{20}$. Nucleus entirely opaque.

September 26, a Ziegler knife-needle was passed into the anterior part of the right nucleus, making a horizontal cut 2 mm. long in the anterior capsule.

September 28, slight redness about the puncture in the temporal limbus; slight opacity about the cut in the capsule.

October 19, decided clouding of the whole lens.

November 23, no atropin has been used for three weeks. The pupil is gray with some mother-of-pearl reflex; the lens slightly swollen.

December 7, with a Ziegler knife, the nucleus was cut rather freely. There was bleeding into the anterior chamber, forming a line from the cut along the temporal limbus. This had disappeared next day.

Jan. 11, 1913, fundus red is seen in the edge of the pupil below and to the nasal side.

* Read before the Section on Ophthalmology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Jackson, Edward: Tr. Am. Ophth. Soc., 1913, xiii, 394.

April 7, the lens nucleus was freely divided by a horizontal incision. A large fragment, 3 mm. in diameter, and smaller ones fell to the lower angle of the anterior chamber. The tension of the eye, which had been 28 mm., rose seven hours later to 58 mm.

April 8, tension lower, eye more comfortable. Lens masses milky and fused together. After this the eye gradually became quiet and the tension fell to 24 mm.

August 28, there were still two fragments of lens in the bottom of the anterior chamber. But they disappeared soon after this.

October 15, right + 8.50 sph. ⌒ — 0.50 cy. ax. 165° = 4/5.

May 25, 1914, with a bifocal lens she constantly uses the right eye. Vision = 5/5 partly; left vision continues 5/15.

In this case of lamellar cataract in a girl of 19, the lens was wholly absorbed after three needlings, requiring a period of about one year. There was no severe reaction at any time, except the last needling, and no other distinct rise of tension in the eyeball. The number of operations required was about what might be expected from the average account of discission. But the time occupied in the absorption was greater, although the patient's age was within the generally accepted limits of 20 to 25 years. It should be noted that there was enough clear lens substance present to keep the cut in the capsule well opened by its swelling. This tends to bring about the desired result with the smallest number of operations. In the next case the lens was more generally opaque. Practically no swelling followed the operation, and six operations were required, although the time occupied was only about eight months, the two patients being of the same age.

CASE 2.—Miss G. H., aged 19, with negative family history, and without history of trauma, was noticed to have cataract of the left eye, at the age of 7 years. There is no reason to believe that this eye ever had good vision. It shows constant divergence, of which the history of onset is quite indefinite. Right: Vision 1.2; normal in all respects.

Jan. 5, 1915. L. Light perception and moderate projection. Diverges constantly 40 centrads. Reaction of pupil good. Anterior chamber rather deep. Pupil occupied with gray lens opacity.

July 27, broad iris shadow through clear cortex. Deeper lens substance gray-white. Pupil under atropin, circular 8 mm. Under cocain, a Bowman stop-needle was thrust 4 mm. into the lens substance, given a half twist on its axis, and withdrawn without any attempt to cut laterally. The lens substance encountered seemed soft, and a little opaque lens matter fell into the anterior chamber.

July 30, lens matter gone from the anterior chamber, pupil full width. Slight hyperemia, around the puncture only.

August 2, eye quiet. No clear cortex visible. Cut in capsule not bulging, but small triangular tongue of lens swings out of it.

August 13, a darker spot toward the nasal side of the pupil is noticed. Lens looks thinner.

August 23, with Ziegler knife-needle a vertical cut of 4 mm. was made in the lens. Layers of cortex flapped forward in the cut, and a small piece fell into the anterior chamber, and had disappeared next day.

August 27, hyperemia gone except at puncture. Pupil 8 mm. Little swelling of lens.

September 26, a horizontal cut was made in the capsule from the nasal margin of the pupil to the vertical cut. The lens substance was broken up well, but none fell into the anterior chamber. At this time it was found that the lens nucleus was opposite to the upper nasal quadrant of the pupil rather than behind its center.

September 7, little reaction. Tonometer shows tension of 26 mm.

September 13, eye entirely quiet. Fragments of lens were hanging forward through the opening in the capsule, but none had fallen into the anterior chamber. Red fundus reflex could now be obtained in the temporal margin of the pupil.

October 19, a cut was made in the nucleus at the upper nasal quadrant of the pupil. The needle penetrated obliquely through the vascular limbus and clear periphery of the cornea, causing notable bleeding. A fraction of a drop of blood escaped from the conjunctival opening; a small pointed swelling formed at the point of entrance, and a line of red showed the track of the needle in the cornea, with some gray clouding around its inner portion and termination in the anterior chamber.

October 20, the foregoing gray cloud has become a dense white opacity, 3 mm. in diameter, apparently at the posterior surface of the cornea, across which a red line shows the needle track. There is marked hyperemia around the puncture, and a slight pericorneal zone. The lens opacity is broken up with a dark almost clear opening in the center, and a crescent of black pupil to the temporal side.

October 23, the exudate at the seat of puncture is thinner, the red line about gone, the eye almost free from pericorneal hyperemia.

October 28, the exudate at the corneal puncture is getting thinner at the edges, and the patch smaller. It is probably situated in the deep layers of the cornea.

November 1, the exudate in the cornea is one-third its original area, and is separated from the opaque limbus.

November 8, the exudate is very faint and indefinite. The eye is quiet.

December 1, the atropin was stopped and pupil allowed to contract.

December 20, an oblique cut was made clear across the dilated pupil, from the upper temporal to the lower nasal margin. Lens masses fell freely into the anterior chamber. One hour later the patient suffered from a chill, with nausea and increasing pain. After seven hours the pupil had contracted to 4 mm. in diameter, and there was marked pericorneal hyperemia, and a little tenderness of the eyeball. Tension normal, to fingers. Atropin 1 per cent. hot stupes; and later morphin was given hypodermically to relieve pain.

December 21, pupil 7 mm. Less pain.

December 22, little pain, but still periods of nausea. The anterior chamber was one-third full of lens masses. The whole eyeball red and moderately tender.

Jan. 21, 1916, eye about quiet; a minute speck of lens substance is still visible on the posterior surface of the cornea.

January 25, all trace of lens gone from the cornea; and lower temporal two thirds of pupil clear. But the fundus reflex is dull, and no details are seen. There are membranous opacities of the vitreous. Plus 12. sph. gives vision of 0.04, and fixation is poor, although tending to be central.

March 3, an inverted T-cut was made in the capsule, dragging down some white lens substance in the upper part of the pupil.

March 6, eye almost white.

March 21, eye quiet.

The striking features in the progress of this case are the hemorrhage into the needle track; and the local and general symptoms excited, as in Case 1, when a large amount of lens substance fell into the anterior chamber, but here without rise of tension.

It may be noted that in Case 1 there was bleeding through the needle opening into the anterior chamber. In Case 2 after the fourth operation the line of blood was distinctly visible through the cornea; and the effects of the bleeding were watched until they had completely disappeared in about two weeks.

In the series of six cases there were in all sixteen needle operations. In only two was there noticeable hemorrhage in the track of the needle wound. The limbal puncture has been used by me for the division of "after" cataract or a membrane for about twenty-five years. And among some hundreds of such operations these two are the only instances of such hemorrhage that have been noted. A chief advantage of entering the needle through vascular tissue is that the wound shall be promptly, aseptically sealed by the

resulting hemorrhage. It was conceivable that some such hemorrhage might at times constitute an undesirable complication. But this experience of the few times it was noticeable, and the smooth progress of the cases when it occurred seems to rule out any possible danger from this source.

The white exudate that appeared in the vicinity of the needle track in Case 2 suggested that possibly lymph was being poured out from Schlemm's canal, either through injury of a part of this somewhat variable lymph space, or some rather large channel communicating with it. If this were the case, no harm was done. Schlemm's canal lies a little in advance and external to the extreme periphery of the anterior chamber. But a needle entered not more than 2 mm. back from the clear corneal margin, and thrust directly toward the lens so as to escape the iris when the pupil is fully dilated, will pass in front of Schlemm's canal, unless it be located in the clear cornea, or lie quite superficial in the sclera. Of such anomalies no evidence has been found, either in sections, photomicrographs or published accounts of the anatomy of this region.

The severe local and general reaction which occurred after the fifth operation was not attended with any noticeable rise in the tension of the eyeball. The tension remained, as after the preceding and subsequent operations, in this case at least quite as low as in the normal eye. The pain was severe and continued several hours, and the patient was seen when it was at its height, although the tonometer was not then used. The general symptoms were quite those of surgical shock, as described by Williams[2] in connection with contusion of the eyeball. The nausea was quite severe, went on to vomiting, and occasionally recurred for three days, large masses of lens substance being still present in the anteror chamber.

CASE 3.—Miss H. A., aged 18, suffered in early childhood with trachomatous keratitis causing perforation of the right cornea near its temporal margin, and adherent leukoma, bulging of the cornea and excessively high myopia. In the left eye the cornea had flattened, causing high hyperopia. Both corneas are nebulous.

June 26, 1912, lens right — 16. to — 25. D. gives vision of 0.02 to 0.03; left + 4. sph. ⊃ + 8 cy. ax. 168° V. = 0.05.

A Bowman straight stop-needle was thrust through the lower temporal limbus of the right eye into the center of the nucleus, given a half rotation on its axis, and withdrawn without cutting the capsule more extensively than by its mere forward thrust.

June 29, there has been rather sharp reaction, a marked pericorneal zone, and decided swelling and opacity of lens. Tension of right eye 40 mm. of mercury (Gradle tonometer).

July 2, eye almost free from redness, quite comfortable. Almost no fundus reflex perceptible in the pupil. Outer quadrant of lens quite gray.

July 17, lens masses protruding from capsule, and in angle of anterior chamber. Tension 47 mm. Eye red, but not painful.

September 4, eye quiet; but lens masses protrude through opening in capsule to the posterior surface of the cornea.

October 2, the protrusion of lens substance much less, anterior chamber much deeper.

November 6, red reflex shows in half the area of pupil. Eye white, but redness on examination and manipulation.

Jan. 22, 1913, the pupil is clear except a crescent of membrane at its lower margin. Right — 15. sph. ⊃ —5. cy. ax. 150°, vision = 3/60. Tension 20 mm.

March 23, 1916, pupil clear. The fundus seems normal. Right — 14. ⊃ —6. cy. ax. 160°, vision = 0.06.

2. Williams, E. R.: Tr. Am. Ophth. Soc., 1915, xiv, 403.

A girl of 18 had the lens needled for excessively high myopia. It was entirely absorbed in less than seven months, after a single operation, in which the cut in the capsule was not more than 1.5 mm. long. But the lens to start with was entirely clear. Its exposure to the aqueous humor resulted in immediate swelling, which continued to keep open the capsular wound with extrusion of small lens fragments and the needle puncture went to the center of the nucleus, which was to some extent disorganized by the rotation of the needle. In this case there was rather prolonged elevation of intra-ocular tension, which probably did not rise at any time above 50 mm. of mercury, and there was no reason to suppose it caused permanent impairment of vision. There can be no doubt that clear lens substance is much more prone to swell than opaque lens matter, and this by keeping open the rent in the capsule may hasten dissolution. This tendency may account for the rather rapid and complete removal of the lens that is sometimes seen after injury even in patients approaching middle life.

CASE 4.—Miss M. W., aged 24, had worn glasses four years, but lately noticed she did not see so well.

April 17, 1903, Right + 2. ⊃ — 0.50 cy. ax. 150°, V. = 4/4 mostly. Left + 1.12 ⊃ — 0.62 cy. ax. 15° V. = 4/5 mostly. This vision in the right eye was obtained under homatropin, but in the center of the lens there was slight opacity and irregular refraction.

May 1, 1908, corrected vision, right, 4/12; left, 4/5 mostly. Ophthalmoscope: Right opacity of lens in both anterior and posterior cortex, most dense in the periphery, and not extending to the posterior pole. Fundus normal. Left, media clear. The two irises are of the same gray color and normal in appearance.

Oct. 25, 1909, right vision 4/15. At the nasal margin of the 7 mm. pupil there is still red reflex, and the largest retinal vessel can be made out.

Sept. 13, 1910, right vision equals 1/60. No fundus reflex. Anterior chamber rather shallow.

November 22, the opacity is still not complete to the capsule, but on account of the white appearance of the pupil the patient seeks operation. A Ziegler knife-needle was thrust through the nucleus of the right eye.

November 23, moderate hyperemia chiefly at the puncture in the limbus. Cut in capsule 1.5 mm. long, cut edges whiter, anterior chamber rather more shallow.

November 28, eye quiet. Track of needle visible in lens. Other parts of superficial cortex still clear.

December 12, there is distinct fulness of large deep scleral vessels, and a slight purplish discoloration of the sclera. The track of the needle thrust is still noticeable. Tension plus T.

December 29, sclera normal. Nuclear part of lens whiter. Anterior chamber deeper.

Jan. 14, 1911, Ziegler knife-needle thrust deeply into nucleus seemed to drag nucleus with it toward wound of entrance, as though it were loose in the cortex.

January 16, deep hyperemia of globe. Cut edges of capsule and superficial layers of cortex are rolled back. Lens distinctly more swollen.

January 23, lens swelling more marked.

February 4, lens still swollen. Tension + T.? Specks of deposit on Descemet's membrane. Deep hyperemia of globe.

March 4, eye free from hyperemia, cortex hazy to extreme periphery.

April 1, the nasal edge of the lens can be seen on looking very obliquely. The lens cortex is hazy, gray, and the nucleus white. The anterior chamber is a little more shallow to the temporal side and the nucleus displaced in that direction. A knife-needle was passed into the nucleus and turned freely.

April 2, moderate deep hyperemia of globe. Pupil 8 mm. Some lens substance in the bottom of the anterior chamber.

June 10, upper part of nucleus absorbed.

August 31, a triangular piece of nucleus floats freely in anterior chamber. Light hurts the eye, and there is aching of that side of the head.

October 21, eye quiet. Nucleus dense yellow, white to lower temporal side. Cortex forms a mass in upper nasal part of pupil. Capsule wrinkled.

November 8, needled both nuclear and cortical masses.

December 8, eye quiet. Absorption proceeding. Nuclear mass 3 by 3.5 mm.

December 18, needle entered at lower limbus, cut from upper nasal margin of pupil to central opening. Then from lower temporal margin pushed remains of nucleus into upper angle of anterior chamber, where it adhered and remained a month, then becoming absorbed.

June 10, 1912, pupil slightly ovoid and displaced down and out 4 by 3.5 mm. Right + 11. ⊃ + 1. cy. ax. 60°, vision = ¼ partly.

Aug. 9, 1913, pupil nearly circular, clearer, correcting vision equals ¼.

A woman aged 31, who had been gradually developing cataract for seven years, but in which there was still considerable clear cortex, had five needlings, through which complete absorption of the lens was secured in about eighteen months. The eye obtained full vision, and less astigmatism than after an average cataract extraction, and the result was in every way satisfactory, except a slightly ovoid pupil. The point of this ovoid, turned down and out, was where the iris had been pressed on for a considerable time by swollen lens; and at this point the sphincter appeared slightly narrower than elsewhere. It seems probable that there had been some atrophy of tissue from pressure. This patient lived in another city, came to Denver, and remained a few days for each needling; and during the remainder of the time was engaged in rather exacting secretarial duties.

CASE 5.—Miss D. M., aged 32, consulted me in 1901, with a history of headache and nervous prostration. Correcting lenses gave much relief and vision as follows:

Right + 1.75 — 0.75 cy. ax. 10° = ¼ plus.

Left + 3.50 sph. = ¼.

July 5, 1906, her glasses and vision were:

Right + 2. + 075 cy. ax. 10 = ¼ plus.

Left + 4. Sph. = ⅕ mostly.

At this time her accommodation was R. 5. D.; L. 4. D.

May 15, 1907, vision with the foregoing correction is Right ¼; Left ⅓. She has been in poor health for one year and a half, but has recently been to the eastern coast and has gained 22 pounds in weight. The right eye appears normal in all respects. The left eye shows minute dots in and behind the nucleus. Her eyes are a blue gray, but the right also shows brown pigmentation over the region of the sphincter, which is quite absent from the left. There are no deposits on the cornea or other signs of pigmentation. Given ethylmorphin hydrochlorid 1:240 to be instilled every second night.

July 1, Left, vision equals 1/30. There is evident general clouding of the vitreous. Given potassium iodid, 50 per cent., from 10 to 20 drops three times a day. This caused nasal watery discharge, disturbance of digestion, and was not pressed above this amount.

August 26, vision and vitreous as before. Transillumination normal. No fundus lesions have been seen.

Sept. 27, 1910, vision has varied from 1/60 to 1/20, and has now fallen again to 3/100. The opacity has grown rather more dense at the center of the nucleus; although it was for a time less in other parts of the pupil. It is now general. The undilated pupil shows gray, and she wishes this appearance removed. Under cocain, anterior capsule punctured.

October 1, margins of cut in capsule and lens whitened for a space 3 mm. long, and 0.5 mm. wide. Eye quiet.

November 5, cut in capsule 3 mm. long. Needle thrust through center of nucleus.

November 7, very little redness about the puncture in limbus only. Noticeable bulging of lower lip of capsule, and some cortex protruding into anterior chamber. Atropin once daily keeps pupil fully dilated.

November 11, more swelling about the cut in capsule, and lens more opaque.

December 14, slow changes have continued in the lens. Anterior chamber noticeably less shallow. Eye entirely quiet.

Jan. 6, 1911, a 3 mm. cut was made in the capsule from below upward, temporarily lifting the margin of the lens into sight in the bottom of the pupil. Considerable cortex escaped into the anterior chamber. Eight hours later the cortex was 2 mm. deep in the bottom of the anterior chamber, the pupil 7 mm. in diameter, moderate pericorneal hyperemia, and the eye felt sore.

January 9, hyperemia much less. Fundus reflex seen in notch at lower edge of lens.

February 10, eye quiet. Fundus reflex at edge of 7 mm. pupil.

March 14, nucleus 6 mm. in diameter. Thrust needle into center of it and twisted it fully around. Nucleus loose in capsule.

March 15, sharp pain last night. Marked pericorneal zone. Some lens matter in anterior chamber.

March 18, no pain. Eye almost free from hyperemia.

March 24, eye quiet.

April 1, with 6 mm. pupil crescent clear 1.5 mm. wide above and to temporal side.

July 6, eye quiet.

December 6, there remains an opaque disklike nucleus 4 mm. in diameter. Left + 12. sph. = 3/40. With a Hays knife-needle, entered through the lower temporal limbus, the lens was pierced near the lower nasal margin of the pupil and dragged outward. It was then pierced near the upper outer margin and dragged downward. The nucleus stuck to the needle, and was left in the anterior chamber in front of the upper outer part of the pupil and iris. With a bent lance knife a 4 mm. incision was made at the corneal margin nearest the nucleus, which was easily extracted with the wire loop. It measured 4 by 4.5 by 1.5 mm. Shreds of capsule and vitreous were cleared away and physostigmin (eserin) 1:1,000 instilled.

December 9, there is little discomfort, slight pericorneal redness and striate opacity of the cornea at the margin of the incision. Dressing omitted.

December 16, eye almost quiet. Some cloudiness of vitreous. With + 12. Vision equals 4/45.

Jan. 9, 1912, Left + 16. D. sph. = 4/22. Eye quiet.

March 21, Left + 14. D. sph. + 1.25 cy. ax. 120° = ⅘ partly.

March 22, 1915, Left + 14. sph. ⊃ + 1.75 cy. ax. 130° = 0.9. The right eye continues normal. R. + 2.75 sph. ⊃ — 0.75 cy. ax. 73° = 1.1.

This patient was 41 years of age, with advanced but immature cataract, before the first operation. At the end of fourteen months after the fourth operation there remained in the upper outer part of the periphery of the anterior chamber, a nucleus 1.5 mm. thick, and a little over 4 mm. in diameter, which was extracted through an incision made at the corneal margin, leaving an eye with a clear circular pupil, and practically good vision. It seemed probable that this nucleus would also have been absorbed, but by removing it the period of treatment was shortened. The eye required a dressing for two days, the patient not being confined to the house at any time.

CASE 6.—Mr. S. G., aged 35, when first seen, Nov. 14, 1903, had been treated several years before, for uveitis of the right eye.

Ophthalmoscope: Right, clouds of vitreous opacities through which the large vessels were just seen. The cornea and lens were clear, the iris normal and the anterior chamber deep. Left, media clear, fundus normal. Vision, Right 1/25; Left ¼ plus.

Aug. 20, 1904, Vision, Right 1/20.

April 21, 1905, Vision, Right 4/150. Ophthalmoscope: Large vessels still visible, clouding most dense toward macula and disk.

Sept. 20, 1906, patient has been told he was getting cataract. Right vision 3/150. Ophthalmoscope: No fundus reflex. Oblique illumination shows gray opacity of lens, chiefly of the nucleus. Broad iris shadow.

March 21, 1908, both eyes present a rather marked arcus senilis. Right lens uniform, milky, grayish white, with a narrow iris shadow on the milky fluid. The anterior chamber deep. Vision, counts fingers at 3 feet.

July 12, 1909, under cocain, with pupil dilated with atropin, a Knapp needle was entered through the temporal limbus, and plunged into the lens to the nasal side of the center of the pupil. No lens substance or fluid escaped into the anterior chamber.

July 13, slight hyperemia at puncture in limbus. No other reaction.

July 23, a horizontal incision 2.5 mm. long was made in the anterior capsule near the lower margin of the pupil.

August 6, reaction has been slight. The eye is now quiet.

September 1, there has been a notable shrinking of the lower portion of the lens. A free cut, 4 mm. long, was made in the capsule at the upper part of the pupil.

September 2, the eye has been uncomfortable. There is moderate general hyperemia, and lens substance is protruding from the cut in the capsule.

September 10, eye free from hyperemia. Large lens masses are hanging forward to the cornea.

November 5, absorption having ceased, leaving a nucleus of 6 mm. in diameter, this was freely divided from below and across by Knapp's knife-needle. During this operation the aqueous escaped so that the lens fragments were left lying against the cornea. This was done at 9:45 a. m. By 5 p. m. discomfort had increased to dull pain with tenderness of eye, pallor and nausea. Tension plus 1. Under cocain, holocain and epinephrin instilled, an incision, 6 mm. long, was made in the lower limbus, and the bulk of the lens fragments extracted with the Levis wire loop. The pain was relieved in a few minutes, and he had a good night's sleep.

November 8, pupil only three-fourths dilated under atropin solution, and hyperemia increased. Solid atropin dilated pupil. This was applied daily for ten days.

November 29, hyperemia subsiding, pupil dilated by a 1 per cent. solution.

December 13, hyperemia has gone except at lower limbus. Remaining lens mass shrunken to one-third its original size.

December 24, optic disk visible. Lower nasal part of the vitreous very cloudy.

Jan. 7, 1910, with Ziegler knife-needle, a remaining white band was divided toward nasal side of pupil. This was followed by a moderate reaction.

February 25, a white mass was torn loose that was resting on the edge of the iris.

February 28, very little reaction. Vision, Right +11. ⌒ +1.50 cy. ax. 120° = 1/5 partly.

Oct. 12, 1915, Right +12. ⌒ +1.12 cy. ax. 40° = 0.9. The left eye has continued normal with corrected vision of 1.3.

This patient was 41 years old with practically mature cataract that had been developing for three years, with a history of disease in the eye running back about ten years before that. Good vision was scarcely expected in this case; but this patient and three of the others sought to get rid of the cataract because of the cosmetic indication. He was 41 years old before the first operation, three needlings had been done, and after four months there remained a nucleus 6 mm. in diameter. This was freely divided and the fragments left in the anterior chamber until seven hours later, when pain and increased tension led to extraction of most of the lens fragments through a linear incision at the corneal margin. Removal of the débris gave immediate relief. But incarceration of the capsule occurred, causing distortion of the pupil. Later a resulting band of white tissue was divided, or torn loose from the edge of the iris. In this case, as in all of the others here reported, severe reaction occurred only when a large amount of lens substance was left free in the anterior chamber, and this irrespective of whether the intra-ocular tension was markedly increased or not.

In all of these cases the cataract was unilateral; and it would seem that discission was especially applicable to unilateral cataract. It is scarcely to be considered where one eye has been lost, or where both are already blind, unless possibly for young children. The time required before the result is obtained rules it out when the patient is dependent on the eye affected. On the other hand, a patient with one good eye will generally be loath to submit to an operation that will require both eyes to be closed for some days, with confinement to bed and other annoyances of a serious operation.

As has been pointed out by Beard and others, discission may be done successfully much later in life than was formerly believed. Two of these patients were over 41 years of age, and there is every reason to think that the lens would have been completely removed by discission, if as much time had been taken for the process as for some of the younger patients. My belief is that many cataracts could thus be dealt with successfully up to the age of 50 or later. But whether it is worth while in general to do this, rather than to extract them, seems doubtful.

CONCLUSIONS

For monolateral cataract up to middle life, discission is to be considered as a proper procedure; and in many cases the patient will prefer it to extraction.

The first discission should make only a short opening in the capsule; but may well penetrate to the center of the nucleus, so that disintegration of the nucleus may begin as soon as possible.

The amount of swelling from a given interference will be proportioned to the size of the opening in the capsule, and the absence of previous change in the lens substance.

Severe reactions and surgical shock are provoked by the presence of large masses of lens substance in the anterior chamber.

Possible hemorrhage, from making the puncture through the vascular limbus, causes no danger to offset the greater safety from infection secured by this point of entrance.

318 Majestic Building.

PRELIMINARY CAPSULOTOMY IN IMMATURE CATARACT *

WILLIAM EVANS BRUNER, A.M., M.D.
CLEVELAND

The value of any operation must be judged not merely by the results, however brilliant, secured with that procedure in the hands of one man, perhaps the originator of that special operation, but also, if not chiefly, by the results obtained by a large number of different surgeons.

For that reason it may be worth while to record my experience, though small, with preliminary capsulotomy, the so-called "Homer Smith" operation, in the extraction of immature cataract.

* Read before the Section on Ophthalmology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

It is not my intention to enter on any discussion of the relative merits of this procedure and the intracapsular extraction, now so much in vogue, as a result of the work and teachings of Colonel Smith of India. The very fact that so many operators are not as yet using the latter method is evidence that they are still seeking some other technic which to them, at least, appears not to be attended with so much risk.

I have developed a preference for preliminary iridectomy in cases of unripe cataract, and have adhered to that practice in these cases, though no doubt it is not necessary to the success of this procedure. This does, of course, subject the patient to an additional operation, but I have never seen it attended with any reaction in my own experience, except in one case many years ago, and that very slight; and if we can judge by the literature, not a few operators seem to prefer the preliminary iridectomy, as far as possible, in their cataract work. However, it is not intended to open a discussion on this question, and it is granted that this procedure is not necessary to the success of the preliminary capsulotomy.

I have used the Homer Smith knife in some cases and the Ziegler knife in others, and like the latter as well, if not better, provided it is one with a short cutting blade.

I have allowed a twenty-four hour interval to elapse between the preliminary capsulotomy and the extraction, doing the former one morning and the latter the next morning. Should excessive swelling and reaction occur, the lens could then be extracted the same afternoon instead of the following morning; but in my own experience I have had only slight reaction, and have had discomfort in only one patient. Perhaps, however, I have not obtained sufficient swelling of the cortical material, and yet it has been enough to obtain the desired result. When there is not much swelling of the cortex, and no reaction or pain, I am inclined, in my next patient, to try postponing the extraction for an additional twenty-four hours.

One drawback to this operation is that it does not seem to permit of the successful use of the capsule forceps in removing the anterior capsule after it has been incised, as is possible when dependence is placed entirely on the forceps in opening and removing the capsule, a procedure which in my regular work has entirely displaced the cystotome.

Another criticism of the operation lies in the fact that in performing the preliminary capsulotomy, we reach the cortex only on the anterior surface of the lens, while in these immature cataracts the cortex on the posterior surface is in the same condition. We may find this portion of the cortex not affected by the capsulotomy, still clear, and more or less adherent to the capsule, and may experience difficulty in getting rid of it; or on account of its being perfectly transparent we may not be aware of its presence, or the amount of it, until the following morning, when the pupil, which appeared clear after the removal of the lens, will show some opaque cortical material in it. This may absorb, or it may increase the probability or necessity of a discission later on, and is just what we wish to avoid by this procedure of preliminary capsulotomy.

I have felt also that it might be wise to use the lid elevator rather than the speculum while making the corneal section for the extraction of the lens after the preliminary capsulotomy, as any unruliness of the patient at this juncture, or squeezing together of the lids, may be attended with expulsion of the lens immediately following the knife and loss of vitreous, though I have never had this misfortune.

For the removal of the soft cortical material I depend here, as usual, on irrigation of the anterior chamber.

This report includes six cases, the extent thus far of my experience with this operation. One of the patients unfortunately suffered an injury to the eye after she left the hospital, so that she should scarcely be included. A preliminary iridectomy, as stated above, was performed in each case. A discission of the capsule was later done on four of the patients, including the one who suffered the injury to the eye. One of the last patients operated on will unquestionably need a discission, and even the sixth one would no doubt be benefited by this procedure, so that in my own experience a discission of the capsule is needed in a larger proportion of cases than after the removal of fully mature cataracts.

VISUAL RESULTS

In one case $\frac{6}{5}$ was obtained, $\frac{6}{6}$ in two, and $\frac{6}{9}$ in one, though this undoubtedly could be further improved by a discission of some thin capsule remaining within the pupillary area. In my last case the vision is $\frac{6}{21}$. In this case irrigation of the anterior chamber could not be completed, so that there is considerable cortical material remaining, which will require a secondary operation. The other one — the sixth patient — is the one who suffered the injury to the eye after leaving the hospital, and I do not as yet know what vision can be obtained with her.

Without further comment, my notes in brief in the cases are as follows:

CASE 1.—W. B., man, aged 69, consulted me with the history of his sight failing for four years; he had been unable to read for six months.

O. D. -5.00 V. $=\frac{3}{45}$

O. S. -6.00 V. $=\frac{6}{60}$

Ophthalmoscopic examination revealed nuclear cataracts, slight red reflex in the periphery; with the pupils dilated; faint glimpse of the retinal vessels in O. D., but not in O. S.

June 15, 1914, iridectomy on O. D. Hemorrhage in the anterior chamber several nights later, probably from blow or pressure on the eye. Otherwise recovery was uneventful.

Nov. 5, 1914, V. of O. D. = fingers at 1 meter. Red reflex seen, but no details of fundus. Preliminary capsulotomy.

Nov. 6, 1914, lens fairly well stirred up, cortex swollen and opaque; slight reaction. Extraction under local anesthetic. Recovery was uneventful, and patient returned home in two weeks.

Jan. 7, 1915, some very fine capsule in the pupillary area; fundus in good condition.

O. D. $+10 \bigcirc +3.00$ axis 135 V. $=\frac{6}{6}$, ordered for distance.

O. D. $+14 \bigcirc +3.00$ axis 135, ordered for reading.

CASE 2.—Man, aged 58, consulted me in October, 1913, for gradual failure of vision extending over several years. V. O. D. $=\frac{6}{12}$; O. S. $=\frac{6}{12}$.

Jan. 7, 1914, O. D. $\frac{6}{60}$; O. S. $\frac{6}{15}$. Nuclear opacity in each lens.

Jan. 19, 1914, O. D. small iridectomy. He or the nurse struck the eye two nights later, causing hemorrhage in the anterior chamber. Otherwise recovery was uninterrupted and uneventful.

May 5, 1914, O. D. counts fingers at 2 feet. Preliminary capsulotomy with Ziegler knife.

May 6, 1914, patient has no pain; cortex not much swollen. Extraction of cataract under local anesthetic. Considerable cortex, which was clear at time of operation, showed up a day or two later. Anterior chamber was shallow for several days. Eye showed no reaction. With atropin and ethylmorphin hydrochlorid (dionin) the cortex gradually absorbed.

June 30, 1914, some very thin capsule showed within the pupil, thicker in the periphery, media otherwise clear and fundus in good condition.

O. D. $+9 \bigcirc + 2.00$ axis 15 V. = 6/6. With +4.00 added, the patient reads 0.50 print very readily.

CASE 3.—Mrs. A. W., aged 68, consulted me because of vision failing for two years. With glasses vision = O. D. 6/60, O. S. 6/60.

Ophthalmoscopic examination: O. D. nuclear cataract, red reflex in periphery. No view of interior. O. S. ditto.

Oct. 22, 1913, small iridectomy: recovery uninterrupted.

Oct. 29, 1914, capsulotomy with Homer Smith knife. Capsule would not cut, but instead the lens moved readily before the knife. Rotated knife to stir up lens as much as possible.

Oct. 30, 1914, very small effect from yesterday's operation. Cataract extracted under local anesthetic. Considerable cortex removed. Irrigated anterior chamber as much as possible, but the cortical material would not readily come away and the patient became very restless, so that it was necessary to desist. No reaction followed, and patient returned home, November 16, with considerable cortex still remaining. This gradually absorbed in part.

Jan. 6, 1915, discission of capsule; stirred up small remaining particle of cortex. No reaction followed.

Feb. 8, 1915, entire pupillary area perfectly clear. Fundus in good condition.

O. D. $+10 \bigcirc + 3.00$ axis 165, V. 6/6. Ordered for distance.

O. D. $+14 \bigcirc + 3.00$ axis 165, patient readily reads 0.50 print; ordered for reading.

CASE 4.—S. C., aged 70, consulted me with history of sight failing in right eye for seven or eight years and in left six years. Has been unable to read with right eye for five or six years and with the left for several months. O. D., nucleus of lens opaque, red reflex in periphery. O. S., nucleus of lens opaque, red reflex in periphery. With pupils dilated a hazy view could be obtained of the nerve and blood vessels. There is an excess of pigment in the choroidal spaces.

Sept. 11, 1914, iridectomy. No reaction followed.

Dec. 30, 1914, preliminary capsulotomy.

Dec. 31, 1914, moderate reaction. Lens somewhat swollen. Extraction under local anesthetic. Recovery uninterrupted. Some capsule remained.

March 10, 1915, discission of capsule with Ziegler knife. No reaction.

March 16, 1915, pupil clear; fundus in good condition.

O. D. $+7 \bigcirc + 3.00$ axis 180 V. = 6/6. Ordered for distance.

O. D. $+11 \bigcirc + 3.00$ axis 180. Reads 0.75 readily. Ordered for reading.

CASE 5.—K. A., aged 60, consulted me because of failure of vision, which has been progressing one and a half years. V. = O. D. 3/60; O. S., fingers at 2 feet.

Ophthalmoscopic examination revealed: O. D. nuclear opacity involving most of the pupillary area. Red reflex in periphery, with no view of fundus. O. S. ditto. In O. S. with the pupil dilated a glimpse of some of the retinal vessels in periphery could be obtained, but no view of the nerve.

Dec. 10, 1915, O. S. iridectomy. No reaction.

Feb. 14, 1916, O. S. counts fingers. Considerable red reflex. Preliminary capsulotomy with Ziegler knife.

Feb. 15, 1916, moderate swelling of lens and slight reaction. Lens extracted under local anesthetic; patient was very restless so that a thorough irrigation of the anterior chamber could not be performed, and considerable sticky cortical material remained. At a moment while nothing whatever was being done to the eye, patient squeezed and expressed a bead of vitreous, so eye was closed without attempting to remove any more of the cortex. Moderate reaction followed, but recovery was uninterrupted.

March 7, 1916, thick capsule with cortex in the lower portion of the pupillary area; this has, however, been gradually absorbing and becoming smaller. There is a clear area above through which a good view of the fundus is obtained, and shows it in good condition.

O. D. $+11 \bigcirc + 2.50$ axis 105 V. 6/21.

A discission at a later date will no doubt markedly improve this vision.

CASE 6.—Mrs. E., aged 60, was referred to the hospital from the dispensary because of nuclear cataract in each eye.

April 2, 1915, O. S. small iridectomy.

Oct. 25, 1915, preliminary capsulotomy with Ziegler knife.

Oct. 26, 1915, no reaction; no pain. Lens extracted under local anesthetic. Recovery was prompt and uneventful. The eye was looking fine when patient left the hospital, but there was some capsule within the pupil that would eventually require a discission. The patient was not seen again until February, 1916. Several months after leaving the hospital she had an injury to this eye by a severe blow upon it. The eye was inflamed and painful for a considerable time, but she failed to report to the hospital and had no treatment. When she was seen in February the pupil was entirely covered with a dense capsule and was displaced somewhat upward.

March 1, 1916, discission of the capsule and pupillary edge of iris was done with the Ziegler knife, and a clear central pupil obtained. I am unable as yet to report what the final vision is with this patient.

New England Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JACKSON AND BRUNER

DR. WILLIAM E. GAMBLE, Chicago: The study of the conjunctival flora, with extermination of the pathologic varieties before operation, and the use of the limbal puncture has reduced the danger of panophthalmitis almost to the vanishing point; however, the complications of this operation, the increased intra-ocular tension, the low grade inflammation of the uveal tract as shown by ciliary injection and occasional shock are the complications that give much apprehension to the surgeon. The repeated operations, the thickened "after cataract," which the retained cortex in the capsule sometimes produces, and the long interval before restoration of sight are difficulties which in the nature of things cannot be avoided. Crystalline lenses react so differently to the traumatism of the knife that the only safe procedure, as Dr. Jackson pointed out, is to make a simple puncture of the capsule the first time. The knowledge gained by this reaction is about the only guide we have as to the amount of discission the eye will safely stand in future needlings. The limbal puncture much reduces the force applied to the lens in making discission or dilaceration of the capsule, as compared with that exerted by the needle when the puncture is through the clear cornea and should always be elected when one needle is to be used. This reduction in force in producing the opening in the capsule for discission of the lens is of great importance, since the least possible force exerted on the lens sometimes subluxates it. Most instruments for this purpose are too thick, producing too large an opening and rendering impossible the keenest cutting edge. I prefer a worn out cataract knife with the edge dulled a short distance from the point. Discission, per se, is clearly indicated in children and young adults with high myopia and clear and cataractous lenses; with laminar cataract, complicated with myopia and choroidal changes; in all cases in young adults or somewhat older individuals where a sudden reduction in intra-ocular tension from corneal incision would endanger the integrity of the eye. We are confronted at times with the complication of the nucleus of the lens developing early. Until we are able definitely to determine the absence of a well formed nucleus, the field of usefulness of discission alone, in adults, will not be greatly enlarged and is not the operation of choice.

Instead of tentative needlings over a considerable period of time, a thorough breaking up of the lens should, in my judgment, be done at one operation, followed in twenty-four to forty-eight hours by linear extraction. The lens can usually be removed by milking it out, aided by pushing back the posterior lip of the wound with a grooved director, thereby allowing the lens débris to ride out over it, and by irrigation of the anterior chamber. In older patients, if a small nucleus is formed, this can readily be picked out on a sharp hook and oftentimes can be removed by irrigation.

As to the patient remaining in bed with both eyes closed after this operation, my experience leads me to think it unnecessary and that a day or two in bed is a sufficient length of time for the patient to be quiet. There is but little more reaction than from iridectomy and no more need for remaining in bed, as the coaptation of the lips of the wound is so perfect that the anterior chamber closes within a few hours. This operation should be elected in many cases where the regular cataract extraction is now practiced, especially in traumatic cataract and other forms of monocular cataract. In senile cataracts coming on at an early age, if operated in this manner the greatest care should be used to remove all of the cortex, for I think it is an experience that most of us have had that some of these cases do not do well after operation. Low grade iritis of plastic type develops producing "after cataract."

DR. HOMER E. SMITH, Norwich, N. Y.: I agree with the essayist that the value of any operation must be judged not only by the results at the hands of its originator but of other men as well. Two years ago I presented before this section a paper in which were tabulated the results of 180 extractions reported by thirty-nine operators, of which 91 per cent. were successful, 6 per cent. partial failures and only 3 per cent. total failures. Taking into account unfamiliarity with a new procedure, and comparing the statistics of results in fully mature and operable cataracts with the percentages above given and in what is admittedly a more difficult and dangerous operation it will be seen that this method does not suffer by comparison. There is another factor in the case and which militates against a proper judgment of the value of a new operation and that is that operators are not content to follow exactly the procedure as laid down by its originator but must try what they think to be improvements, not realizing, perhaps, that what they consider such have been already tried and rejected. If the contention of the originator be correct that the lens capsule is held tense by the reefing lines of the zonula, then only through a large and ample capsulotomy can the capsule roll back fully and allow entrance of the aqueous between capsule and cortex to separate one from the other. The anterior chamber is crescentic in cross section and at the extreme periphery the space diminishes to zero; even with a 2 mm. blade one must press back the lens slightly to begin or end the incision properly. With a blade longer than this an insufficient cut is made and then the wound gapes only and the desired result is not attained. Much depends also on the shape and sharpness of the blade; if too pointed it catches in and may dislocate the lens; this will happen also if it is not superlatively *cutting* sharp clear up to the point. If capsulotomy is properly done no capsule remains in the pupillary area and there can be no use for capsule forceps. Only on the anterior capsule are there nucleated lens fibers; the posterior capsule has no epithelium, and if this portion of the cortex is not affected by the capsulotomy it simply means that there was an insufficient division of the capsule. Experience has convinced me of the advantages of a preliminary capsulotomy as compared with capsulectomy or that immediately preceding the delivery of the lens, when properly performed, and if an interval of six or more hours is allowed to elapse between the capsulotomy and the extraction proper, a separation between capsule and cortex will result and so make immediately operable cataracts in any stage of opacification, and the delivery of the lens, mature or immature, is cleaner and easier than by any other method.

DR. LEE M. FRANCIS, Buffalo: Dr. Jackson in his discussion of Case 2 speaks of "oozing of lymph from Schlemm's canal." I am under the impression that the most recent observers regard Schlemm's canal as a venous and not a lymph channel. Concerning Dr. Bruner's paper: My experience with the Homer Smith method of preliminary capsulotomy covers between twenty and twenty-five cases. I find that one is aided a great deal in making the preliminary capsulotomy by using a + 3.00 lens with a 3 D prism base in and getting down close to the eye to introduce the capsulotome. Since adopting this procedure, I have to make my incision with greater precision. I have met with three complications: First, owing to the swelling of the lens, the production of a very shallow anterior chamber makes the corneal incision rather difficult; second, bulging forward of the iris on the knife so that it is difficult to escape it in making the incision; third, spontaneous expression of the lens by the patient on completion of the corneal incision. In one case this occurred while I was changing my instruments. I have been unfortunate in having to contend with a great deal of remaining débris and I have not been so sure that the operation offers any great advantage in this respect, although it is difficult to judge in so small a series.

DR. HAROLD GIFFORD, Omaha: There is a certain amount of misconception as to the position of Dr. Smith with reference to preliminary capsulotomy. From my conversation with colleagues I judge that a number of men believe that Dr. Smith was the first to suggest preliminary capsulotomy for cataract extraction. Of course, it is as old as the hills. About the first ophthalmic article I ever read was one by Steffen of Frankfurt. In it he spoke of doing preliminary capsulotomy as a regular thing with unripe cataracts. But the feature of Smith's operation is the extreme extent of the incisions in the capsule. In this it differs from anything which preceded it. I have tried this procedure, not with Smith's knife, however, but in the cases in which I have tried it the complications have been such that I have not been encouraged to continue it. I met with two forms of complication; one such as was mentioned by Dr. Francis. He did not speak of having glaucoma, but the fact is I got glaucoma within a very short time after the operation; in one case severe pain set in within an hour and the chamber got very shallow, and I had to extract the cataract under adverse circumstances. It is almost the rule to have increased tension and a shallow chamber within twelve hours after the operation. One objection is that if we do as Smith directs, we go to the hospital twice: we go in the morning to do the capsulotomy and in the afternoon to do the operation. If you wait twenty-four hours you are very likely to have glaucoma and must extract at a disadvantage. In one of the cases in which I had this experience the eye was markedly glaucomatous; there was no anterior chamber. I had to enlarge the incision with a scissors. I extracted all of the cortex which apparently was opaque, and then after twenty-four hours there was found a large sheet of opaque matter that had been transparent when I made the extraction. This extensive capsulotomy does not always get all of the cortex opaque and ready to come out. My experience, therefore, has convinced me that it is simpler to use the capsule forceps, no matter what the age of the lens, and extract the lens without reference to its maturity or immaturity.

DR. S. D. RISLEY, Philadelphia: I agree with Dr. Jackson as to the feasibility of the removal of cataract by absorption following repeated discissions of the lens prior to middle life in selected cases. The objection to its frequent adoption is not only the danger inherent in frequently repeated operations, but the great inconvenience to both patient and surgeon caused by the prolonged detention in the hospital awaiting the slow absorption of the released cortex in the anterior chamber after each discission. This makes the method particularly prohibitive with private patients living at distant homes, since it is not safe to permit their return to their homes during the intervals between operations. This is true even in the case of very young children with opaque or semi-opaque lenses and is increasingly more aggravating in patients at 40 or 45 years of age. To avoid these difficulties I have devised a procedure which I have employed with increasing satisfaction for ten years or longer in the various forms of cataract in children and young people, and a few times in high myopia. It materially lessens the hospital days and secures better ultimate results and with less danger. The pupil is dilated under cocain and atropia and a small Hayes-Ziegler knife is inserted at the upper corneal limbus and carried to a point on the lens capsule under the inferior pupillary border; a vertical slit is made in the capsule, extending to the pupil border above. In suitable light this is seen to widen into an elliptical opening in the capsule.

The knife is then carried to the same point below and a deep cut made in the cortex along the line of incision in the capsule. After twenty-four or forty-eight hours a keratome is entered at the upper corneal limbus and its point carried deeply into the lens at the upper border of the dilated pupil, cutting across the upper end of the capsule incision in the primary operation. The keratome is then slowly, but partially, withdrawn, the point of the knife being pressed backward to cause the wound to gape and to prevent the prolapse of the iris. The opaque and softened cortex is by this procedure allowed to escape over the anterior surface of the blade. The rapidity of its delivery can be controlled by pressure exerted through the fixation forceps below, and the back of the blade above, if too rapid by traction with the forceps and release of pressure above. The intra-ocular tension alone is usually sufficient to expel the cortex and must occasionally be controlled by traction with the forceps.

DR. J. G. DORSEY, Wichita, Kan.: I have a case which illustrates part of the feature that Dr. Jackson emphasizes regarding the swelling of the lens in the anterior chamber. The case was one of traumatic cataract produced in a peculiar manner. While shaking a banner a pin was projected into the eye, producing traumatic cataract. When the patient came in there was considerable swelling of the cortex and the anterior chamber was largely filled with lenticular matter. The eye was considerably inflamed, and although we knew that the pin was not sterile, we thought we would risk it rather than produce more trauma, and take the chances of further irritation. After the absorption of the particularly abundant lenticular matter the case went on for several days, when suddenly the girl complained of shock or pain, nausea, etc., and on looking at the eye I again saw it filled with this same swollen lenticular matter. The lens matter went on to absorption without further trouble. There was no glaucoma. It seemed to be an inflammatory condition. Speaking of the needling preceding a cataract operation, my difficulty in the operation of Dr. Smith has been in making my discission large enough. I find difficulty in making the cross incision. There was some difficulty with the knife; but the results have been very good in the few cases I have done.

DR. D. C. LOUCHERY, Clarksburg, W. Va.: I should like to report the case of a patient 17 years of age. It was said that the child had lost its sight at 6. I cut across the lens capsule and extracted a remnant of lens. A nucleus was found in the other eye, but I obtained better vision than I could have hoped for in a person ten years or more in that condition. Four weeks ago I saw a man who received a blow across the eye with a bottle three or four days before. He had a traumatic cataract. The lens capsule was ruptured, and the iris was adherent to the cornea in the upper portion. The eye had had no attention whatever. I insisted on his going to the hospital, but he went home, and four days later came back. The lens had poured out and the anterior chamber was filled to the cornea. He had no tension. It is beginning to clear up so that he can see some. I suppose the lens will not absorb completely, but the results are so far most excellent. I do not know what the final result will be.

DR. E. J. BISSEL, Rochester, N. Y.: I have performed the Homer Smith operation eight times. There are two or three factors that I think need to be emphasized. The first is that the section of the capsule should always be made by artificial light. I use a Nernst lamp. I think it is difficult to follow the depth of the incision by daylight. I also use the Beebe binocular loup, which gives sharp detail. The first time I did the operation I had an instrument of the pattern of Dr. Smith's knife, but not made by the firm he suggested, and I found that the taper was not quite right, and lost some aqueous, which makes it difficult to make the second incision—the cross incision; but after getting the instrument just as he suggested I found no difficulty in making the capsule incision under the conditions I have named. I have found difficulty in making the corneal section. In two cases the iris was caught on the knife. It is quite difficult to avoid that if the lens becomes much swollen. I have done the preliminary capsulotomy in the late afternoon and the extraction in the morning, and in only one case has there been any increase in tension. This patient developed pain in the night, and in the morning there was a severe glaucomatous condition. The final result was very satisfactory. The results in all cases have been good as regards vision. I have done the operation less often recently. There is great danger in cutting into the lens substance too deeply and getting too much swelling of the lens.

DR. CLARK W. HAWLEY, Chicago: About twenty years ago I reported several cases in which I did the same operation in a different manner—I made the incision horizontally instead of vertically, extending it clear across the capsule. I used a knife which I inserted to its full size, then withdrew it partly, and gently lifted the cornea and all the cortex will come out that has been softened. I learned this method from an accident in the Chicago Shipbuilding Company's yards at Chicago. In one case the entrance of a piece of steel into the eye cut the capsule clear across and the anterior chamber was filled with lens-matter. I have since used this knife and this method and have had such good success that I have used it in all cases.

DR. MARY BUCHANAN, Philadelphia: I have employed the Homer Smith method in twenty cases. In nineteen I used his own knife, in the other case the Ziegler knife, but found that it was not so satisfactory. I had to go in and assist the lens out, which I never do with the Homer Smith knife. We have had two cases in which there was marked rise of tension. In one, the man came from the country and was in a hurry to get home; so against my advice my assistant did not do a preliminary iridectomy, as the pupil would not dilate. By the next day there was a hard eyeball. An iridectomy was immediately performed but the next day the tension was just as high as the day before. We extracted the lens without accident and the man made a good recovery. I saw him on my way to the meeting and he had $\frac{5}{5}$ vision in that eye. In the other case I did a preliminary capsulotomy at 4 p. m. and the extraction at 5 a. m. the next day, having been called up on account of the patient's pain in the night. Since adopting the six hour interval between capsulotomy and extraction no glaucoma has resulted. There is often a lot of cortex that looks gray in the pupil one or two days after the operation; but if the capsulotomy has been done as extensively as Smith advises, the aqueous humor takes care of the cortex. I think out of the twenty cases I had to do a slight secondary operation once or twice, but there was only a little shred of membrane across the pupil and there was no difficulty at all in doing it.

DR. G. C. SAVAGE, Nashville, Tenn.: I have done the Homer Smith operation quite a number of times. I have not followed exactly the directions of Dr. Smith. I do not believe it is necessary to make the capsulotomy twenty-four hours before the extraction. What is the purpose of the capsulotomy? Not that the lens may be ripened and made cloudy especially, but it is that the aqueous humor may get into the layers of the lens fibers in contact with the capsule both before and behind. Through the opening the aqueous humor has little trouble passing within the capsule and going entirely around the lens substance, loosening the contact. I do the capsulotomy early in the morning, say about 8 or 9 o'clock, and then about six or eight hours later I extract the lens, with wonderful ease. I have never done the Smith operation with anything ugly following, chargeable to the operation itself. Every case except one has resulted spendidly, and the bad result in that one case was from a purulent inflammation which I am sure was due to autoinfection, which developed about thirty-six hours after the extraction. I believe the safest operation for cataract, everything considered, whether in or out of the capsule, is the Homer Smith operation, and I know it is the easiest operation of all of them. The capsulotomy done early in the morning and the extraction late in the afternoon has not given time for the lens to swell to any great extent. It has never swollen to a sufficient extent to interfere with the corneal incision as I do the operation. I believe that, in senile cataract, it would be better to divide the operation into two stages. These

stages ought to be as close together as possible; and the only reason that there should be any time intervening is that there may be escape of aqueous through the puncture wound you have made in making a good capsulotomy, making the anterior chamber so shallow as to make the corneal incision very difficult, without waiting for the chamber to refill. A capsulotomy can be better made when there has been no incision in the cornea. When this is done freely—whether with the Ziegler, the Knapp or the Smith instrument—as Smith directs, the capsule will open widely. If, on withdrawing the instrument in a senile case, the aqueous does not escape we can go ahead and take the lens out without trouble. I believe if we would do the capsulotomy before making the corneal incision, we could more often do a simple extraction of the cataract in a more perfect sort of a way. After the capsule has been opened, while you have the eyeball fixed in its position, if the pupil is sufficiently open you may take the spatula and make pressure on the eye below, completing the operation in almost half the time that must elapse if we make the incision, then the capsulotomy and then the extraction. I am going to do the Homer Smith operation until the Hulen operation has been so perfected that there will be no necessity for leaving any capsule in the eye at all. The large opening in the anterior capsule after the Smith method must greatly lessen the necessity for secondary operations.

Dr. Edward Jackson, Denver: In reference to Schlemm's canal, some one within the last year published the result of his investigation, reaching the conclusion that it is a lymph space. I think perhaps the most important evidence on the matter is that developed by Salzmann by ophthalmoscopy of the angle of the anterior chamber. In his last paper on the subject he figures a line parallel to the periphery of the anterior chamber which he takes to be caused by Schlemm's canal, rather darker than the sclera, and varying as to how much darker. In only two cases has it shown any pink color. He believes that at times some blood may be mixed with the lymph, but generally it is simply a gray line, in contrast with the white sclera. I have seen it. With reference to the residence of the patient, of course discission is only applicable for patients who can come again and again, without having to travel very far and without serious inconvenience. The cases I reported have all been treated outside the hospital. They were not confined to the house at any time, except in one case. The girl who suffered the most severe reaction, without rise of tension, and with symptoms of shock, and who has an abnormal eye, a congenital defect, was the only one seen outside the office. One patient lived in a city nearly 100 miles away, and came to Denver for the operation, remaining two or three days—Saturday to Monday. She had a rather important position. I think at one time she was in Denver perhaps ten days, although at that time the reaction was over in two or three days. Of course, the procedure is only applicable to those patients who can be kept under observation. The early development of the nucleus I think is to be rather expected with an early development that runs very much the course of senile cataract. Three of these cases were of that character. They developed probably after some uveal disease, but without any iritic adhesions and without any evidence of active disease for several years. None of them showed evidence of active uveal disease from the time the cataracts began to obscure the fundus, up to the time the view was cleared up, and I think none showed any extensive changes in the choroid since the cataract was cleared up. All of the nucleus, even if well developed, can and will be absorbed if time is given after sufficient needling. The point I would like to emphasize about the operation is that it is the size of the opening in the capsule that determines the danger of swelling, and of the lens material flowing into the anterior chamber, where it will cause either a rise of tension, or severe reaction without rise of tension, and the symptoms which we wish to avoid. The penetration of the nucleus is not followed by any particular reaction. If the nucleus is cut into pieces and fragments fall into the anterior chamber, you are practically certain to have reaction. But if the nucleus is punctured, even clear to the center of the nucleus, at the first puncture, it does not add to the reaction that occurs, provided you have a small opening in the capsule. It is an established point that it is safer to cut freely an opaque lens than a transparent lens, as regards danger from subsequent swelling.

Dr. W. E. Bruner, Cleveland: I should have stated that I use homatropin before doing the preliminary capsulotomy, so as to get as large an opening in the capsule as possible. I make the puncture as Dr. Jackson does, through the corneal limbus. In my experience I have been surprised at the small amount of reaction that followed. I have done the capsulotomy in the morning, prepared to do the extraction of the lens later in the day if necessary.

RETINAL DETACHMENT IN HYDROPHTHALMIA *

ARNOLD KNAPP, M.D.
NEW YORK

It is surely striking that patients with congenital glaucoma apparently disappear from view after a certain length of time; for it is very unusual to find persons with this disease in middle life, though there are some reports of cases in which the process has been spontaneously arrested and some sight retained. That these enlarged eyeballs are extremely susceptible to injury is natural, and unquestionably most of these eyes are enucleated after rupture following often a trivial injury. It is even reported that this rupture can occur spontaneously. Furthermore, the ectatic cornea in these glaucomatous eyes becomes easily infected and stands infection badly, so that a number of the eyes are probably lost from this cause.

I have had an opportunity of observing clinically a case of hydrophthalmia in which a detachment of the retina occurred spontaneously, and the eye then went on to phthisis bulbi. As this outcome is not mentioned in the textbooks, I deem it worthy of report.

The patient, F. B., aged 11, was brought to the Herman Knapp Memorial Eye Hospital, Nov. 28, 1914, with the statement that both eyeballs were enlarged from birth and that the right eye was injured by a blow four years ago and subsequently removed. The left eye was enormously enlarged with all the characteristics of hydrophthalmia. The cornea measured 16 mm. The vision was $\frac{5}{200}$. With the tonometer the tension was slightly over 30, and after the use of pilocarpin it was reduced to 27. As the tension could be controlled with pilocarpin, and on account of the extreme ectatic condition of the eyeball, an operation seemed inadvisable, though it had been proposed at one of the other eye hospitals. The patient was brought to us from time to time with practically no change in the condition, and with tension averaging 25, until March 19, 1915, when the eye was found to be unusually soft, and the vision greatly reduced. The field was contracted to a small area around the point of fixation, in which the patient was still able to count fingers directly in front of the eye. With the ophthalmoscope a distinct detachment of the retina could be made out, of the usual color without any evidences of a hemorrhage. The pilocarpin was stopped and atropin was ordered. The eye remained soft, and gradually became smaller and blind. Nov. 6, 1915, the eye was shrunken, and a cataract had developed to which the iris was adherent. There was no light perception.

Axenfeld[1] has reported a case which is similar to this, in which a detachment was discovered by the ophthalmoscope before phthisis set in. Axenfeld

* Read before the Section on Ophthalmology at the Sixty-Seventh Annual Session of the American Medical Association, Detroit, June, 1916.

1. Axenfeld: Ueber das Vorkommen von Netzhautablösung beim Hydrophthalmos, Klin. Med. f. Augenh., 1903, xli.

states that his is the first case in the literature in which this occurrence has been observed. Cases in which a gradual shrinkage and phthisis bulbi have occurred in hydrophthalmic eyes have been reported, though it had not been possible to determine the cause.

In finding a possible explanation, it is well to consider what becomes of glaucomatous eyes in general. Many of these remain hard, undergoing the well known degenerative changes. Others develop ectasias of the sclera and finally, according to Fuchs,[2] the termination of all glaucomas is a shrinkage of the eyeball which occurs after the eye has been hard for many years. Operations on eyes which have been in a state of increased tension for a long time frequently show a fluid vitreous, as is sometimes demonstrated during operation on these eyes.

It seems to me reasonable to assume, therefore, that in cases of hydrophthalmia the vitreous degenerates in the advanced stages of the glaucomatous process, and at a certain point or stage of degeneration conditions are present, sufficient to overcome the natural tendency of a glaucomatous eye against detachment, which produce a change from increased to decreased tension and a detachment of the retina.

The possibility of a spontaneous detachment of the retina should be considered before deciding to operate on advanced cases of hydrophthalmia.

10 East Fifty-Fourth Street.

ABSTRACT OF DISCUSSION

DR. DON M. CAMPBELL, Detroit: I find little to discuss on the subject of detachment of the retina—hydrophthalmia. Very few cases are reported and none in the textbooks. There does not seem, however, to be any reason why we should not have detachment of the retina in the hydrophthalmic eye, except for the increased intra-ocular tension which would keep the retina closely applied to the underlying tissue. Dr. Knapp states that the possible detachment of the retina is bound up with the fluid vitreous and the change from the hard to the soft eye. It has occurred to me that the cause of the change of the eye from hard to soft may be the cause really of the detachment of the retina and also of the decreased tension. We can, I believe, only judge of this subject from analogy. There is no pathologic material, so far as I have been able to find, to cover the explanation of the passage of a hard eye to a soft one; but we do know that in these cases of buphthalmos or hydrophthalmos certain changes take place in the anterior segment of the eyeball which may take place in the posterior segment and may serve to explain the softening and detachment. We know that in anterior staphyloma the choroid and sclera gradually become thinner; that eventually at areas in the anterior staphyloma the sclera breaks through and disappears entirely. In a similar way we may have the same thing take place in the posterior part of the eyeball, although we have no observations of an anatomic character to bear that out. There is an analogous condition in the ciliary region in buphthalmos, a separation of the iris from the ciliary region, a condition which Fuchs refers to as a spontaneous dialysis. There is also in the cornea of buphthalmic eyes a certain anatomic condition which has been observed that offers another explanation of the possibility of a detachment of the retina. It has been found that in hydrophthalmic corneas there is a rupture of Descemet's membrane, therefore it is not at all unlikely that the retina, which is more delicate than the elastic membrane of the cornea, might also be the seat of minute ruptures from its distention. We have, then, these two possibilities resulting from analogy: There is a partial rupture of the sclera posteriorly, overlaid by a retina which has undergone minute rupture also, and when we add to those the fluid vitreous, it is not a great flight of imagination to conceive at least that the fluid vitreous might find its way through the retinal tents and produce detachment in these hydrophthalmic eyes. It seems that a possible explanation of this spontaneous detachment would be along the lines, first, of a fluid vitreous; second, rupture of the sclera, or a sclera very much weakened behind the retina; and third, the slight ruptures which might occur in the retinal tissue from its extreme distention in these highly distended eyeballs. This is purely theoretical and cannot at the present time be substantiated by anatomic research. At the same time it does not seem to be an unusual explanation. Of course, there are comparatively few buphthalmic eyes in that condition long enough to be observed. The cornea on the lens become more or less hazy and we cannot observe the interior of the eye.

DR. T. B. HOLLOWAY, Philadelphia: Dr. Knapp's case well illustrates the contentions of Axenfeld, who believes that retinal detachment is often the determining factor in the production of blindness in cases of buphthalmos. Axenfeld has emphasized this point, and further states that the detachment is promptly followed by reduction in the ocular tension. In speaking of spontaneous cure in these cases, he believes this may be in certain instances hereditary. At the Overbrook School for the Blind I have under observation at the present time eight children who have been affected with buphthalmos, and some of these have been under observation for five or six years. The first case, which I think is probably the only one, had a retinal detachment. The patient was first seen in 1909, and in 1911 the detachment was observed. The difficulties in studying these advanced cases of buphthalmos will be appreciated when we recall the searching movements, so frequently present, the changes that develop in the cornea as the result of ruptures in Descemet's membrane, the development of cataractous changes, and possibly diffuse opacification of the cornea. In the cases at Overbrook School, several show marked decrease in tension in one or both eyes, and I can recall instances where the eye when first observed had increased tension, and then gradual and progressive decrease in tension developed with gradual atrophy of the eye.

2. Fuchs: Lehrbuch der Augenheilkunde, Ed. 10, p. 445.

A CASE OF CEREBROSPINAL SYPHILIS ASSOCIATED WITH PNEUMOCOCCIC MENINGITIS

E. M. HAMMES, M.D., ST. PAUL

Marked advances in the diagnosis of organic nervous diseases have been made in the past few years. This is in a great measure due to the careful and frequent studies of the spinal fluid in our obscure neurologic cases. The importance of Nonne's four tests, to which may be added a fifth, Lange's colloidal gold test, are demonstrated in the following case. The combination of cerebrospinal syphilis with pneumococcic meningitis seemed of sufficient interest for publication.

A woman, aged 21, single, domestic, with negative family and personal history, except for an appendectomy in 1911, stated that about two years ago she had a sore on her hand, which the doctor pronounced a gonorrheal infection. Syphilis was denied. The present complaint began about Jan. 10, 1915, when the patient developed an abscess on her right thumb which was very painful. This continued to suppurate slightly for one week, and January 17 the abscess was lanced and drained. The evening previous, the patient developed severe headaches and shortly afterward had a general convulsion. She had another one, January 18, and her headaches since then have been mostly frontal and bilateral.

I first saw her January 19, when she complained of severe frontal headaches, and appeared somewhat drowsy and confused. The physical and neurologic examination at this time were negative, except for an abscess on the right thumb which was draining freely. The temperature was around 100 F. for two days, and then gradually became normal and has remained so. The pulse varied between 75 and 100. Leukocytosis was 12,200; blood pressure 122 mm. Hg; urine normal.

A diagnosis of metastatic involvement of the brain following the infection of the thumb was suggested.

During the night of January 19 she had ten major convulsions, and in the forenoon of January 20, she had at least twenty more, and it seemed as if she would pass into a status epilepticus. These convulsions were jacksonian in character, beginning with spasms of the left face, while the eyes were rotated to the left and upward. The spasm soon involved the left arm and leg, after which it became generalized. In an interval between convulsions, January 20, we performed a lumbar puncture and drew off about 8 c.c. of clear spinal fluid under pressure. This gave positive Nonne and Noguchi tests, a lymphocytosis of 12 per cubic millimeter, and a positive Wassermann. The colloidal gold curve was suggestive of cerebrospinal syphilis. The Wassermann in the blood was also positive. The neurologic examination at this time gave a bilateral Babinski and a mild optic neuritis, more marked on the right side. The Babinski on the left side disappeared, but on the right side was still present one week later. All the other neurologic findings were negative. A diagnosis of cerebrospinal syphilis was made. The patient was given six intravenous injections of 0.9 gm. neosalvarsan each, at intervals of ten days, and made a clinical recovery. The Wassermann tests in the blood and spinal fluid were still positive. One month later I again saw her, when she had developed an apparently similar condition to the previous one.

Her sister gave the following history: Since leaving the hospital, she has been perfectly well until two days ago, when she complained of nausea and headache. Soon after she had a chill, and the following day had a convulsion and became unconscious. At the time of the examination, she was semiconscious, and had all the manifestations of an acute meningitis. There was a rigid neck, Kernig sign, and increased reflexes. The temperature was 103 F., pulse 120, respiration 35. Aside from a lobar pneumonia of the left lower lobe, the physical examination was negative. A lumbar puncture was performed, the spinal fluid was turbid, loaded with leukocytes and the *Diplococcus pneumoniae;* the globulin test was strongly positive. The colloidal gold test showed a discolorization in the last five tubes, such as we get in suppurative meningitis. The condition gradually grew worse and the patient passed into a state of coma and died. Postmortem examination was not permitted.

The interesting feature of the case to me was the change in the colloidal gold curve in relation to the nervous syphilis and the pneumococcic meningitis. During the acute phase of the cerebrospinal syphilis, the colloidal gold curve was 1124300000. During the pneumococcic meningitis the curve was 1121134421. I regret that we neglected to make a Wassermann test of the last spinal fluid examined.

1019 Lowry Building.

The Civilian in Army Practice.—People sometimes imagine that a practicing physician can be transformed into an army surgeon merely by putting a uniform on him. I was not lacking in ordinary intelligence and was willing to work, but I was utterly without training. To get two churches ready as hospitals I had to have beds, mattresses, sheets, pillow-cases, chairs, tables, kitchen utensils, knives, forks, spoons, peppers and salts, all sorts of crockery and other necessities for a dining room, all the drugs, appliances and instruments needed for 200 sick and wounded men; I needed orderlies, cooks and the endless odds and ends of things which go to make up a well organized hospital. I did not know how to get a single one of these requisites. As to drugs, I did not know whether to order 6 ounces or a gallon of laudanum, an ounce or two or a pound or two of opium, and I was in utter darkness as to the mode of getting any of the other things from a teaspoon to a cook. However, I inquired and as soon as I learned how, I set myself to work. For two nights I slept only about three hours each, and I had the satisfaction of reporting to Dr. Letterman at the end of three days, instead of five, that I was ready. On the fourth day I had 100 wounded men in each hospital.—W. W. Keen, Addresses and Other Papers, 1905.

Therapeutics

BLOOD PRESSURE

(*Continued from page 203*)

VENOUS PRESSURE

The venous pressure, after a long neglect, is now again being studied, and its determination is urged as of diagnostic and prognostic significance.

Hooker[10] says there is a progressive rise of venous pressure from youth to old age. He has described an apparatus[11] which allows of the reading of the blood pressure in a vein of the hand when the arm is at absolute rest, and best with the patient in bed and reclining at an angle of 45 degrees. He finds that just before death there is a rapid rise in venous pressure, or a continuously high pressure above the 20 cm. of water level, and he believes that a venous pressure continuously above this 20 cm. of water limit which is not lowered by digitalis or other means is serious; and that the heart cannot long stand such a condition. These dangerous rises in venous pressure are generally coincident with a fall of systolic arterial pressure, although there may be no constant relation between the two. He also finds that with an increase of venous pressure the urinary output decreases. This, of course, shows venous stasis in the kidneys as well as a probable lowering of arterial pressure.

Clark[12] did not find that venesection prevented a subsequent rapid rise in venous pressure in dire cases. From his investigations he concludes that a venous pressure of 20 cm. of water is a danger limit between compensation and decompensation of the heart, and a rise above this point will precede the clinical signs of decompensation.

Hooker also found that there are daily variations of venous pressure from 10 to 20 cm. of water, with an average of 15 cm., while in sleep it falls 7 or 8 cm.

It seems probable that there may be a special nervous mechanism of the veins which may increase the blood pressure in them as epinephrin solution may cause some constriction.

Wiggers[13] describes a method of taking and interpreting the supraclavicular venous pulse. He also[14] carefully describes the readings and the different phases of normal arterial pulse, and urges that it should be remembered that "the pulse as palpated or recorded from any artery is the variation in the arterial volume produced by the intra-arterial pressure change at that point."

A quick method of estimating the venous pressure by lowering and raising the arm has long been utilized. The dilatation of the veins of the back of the hand when the hand is raised should disappear, and they should practically collapse, in normal conditions, when the hand is at the level of the apex of the heart. When the venous pressure is increased, this collapse will not occur until the hand is above the level of the heart. Oliver[15] found that the venous pressure denoted by the collapse of the veins may be shown approximately in millimeters of mercury by multiplying by 2 each inch above the level of the heart in which the veins collapse. When a normal person reclines after standing

10. Hooker: Am. Jour. Physiol., March, 1916.
11. Hooker: Am. Jour. Physiol., 1914, xxxv, 73.
12. Clark, A. D.: A Study of the Diagnostic and Prognostic Significance of Venous Pressure Observations in Cardiac Disease, Arch. Int. Med., October, 1915, p. 587.
13. Wiggers, C. J.: The Supraclavicular Venous Pulse in Man, The Journal A. M. A., May 1, 1915, p. 1485.
14. Wiggers, C. J.: The Contour of the Normal Arterial Pulse, The Journal A. M. A., April 24, 1915, p. 1380.
15. Oliver: Quart. Med. Jour., 1907, i, 59.

there is a fall in venous pressure, and when he again stands erect there is an increase in venous pressure.

Bailey[16] states that in interpreting pulsation in the peripheral veins, it should not be forgotten that they may overlie pulsating arteries. Pulsation in veins may be due also to an aneurysmal dilatation, or to direct connection with an artery. As the etiology in many instances of varicose veins is uncertain, he thinks that they may be caused by incompetence of the right heart, more or less temporary perhaps, from muscular exertion. This incompetence being frequently repeated, peripheral veins may dilate. Moreover, the contraction of the right heart may cause a wave in the veins of the extremities, and he believes that incompetency of the tricuspid valve may be the cause of varicosities in the veins of the extremities.

NORMAL BLOOD PRESSURE FOR ADULTS

Woley,[17] after studying the blood pressure in a thousand persons, found that the systolic average for males at all ages was 127.5 mm., while that for females at all ages was 120 mm. He found the average in persons from 15 to 30 years to be 122 systolic; from 30 to 40, 127 mm., and from the ages of 40 to 50, to be 130 mm.

Lee[18] examined 662 young men at the average age of 18, and found that the average systolic blood pressure was 120 mm., and the average diastolic 80 mm. Eighty-five of these young men, however, had a systolic pressure of over 140. It is not unusual to find that a young man who is very athletic has an abnormally high systolic pressure.

Barach and Marks,[19] in a series of 656 healthy young men, found that the systolic pressure was above 150 in only 10 per cent., and that in 338 cases the diastolic pressure, read at the fifth phase, did not exceed 100 mm. in 96 per cent.

Nicholson[20] believes that with a low systolic pressure and a large pressure pulse there is probably a strong heart and dilated blood vessels, while with a low systolic pressure and a small pressure pulse the heart itself is weak, with also, perhaps, dilated blood vessels. If there is a high systolic pressure and a correspondingly high diastolic pressure, the balance between the vessels and the heart is compensated as long as the heart muscle is sufficient. He believes the velocity of the blood in the blood stream may be roughly estimated as being equal to the pressure pulse multiplied by the pulse rate.

Faber[21] examined 211 obese patients, and in 182 of these there was no kidney or vascular disturbance. In 52 per cent. of these 211 persons the systolic pressure was under 140, while in the remaining 48 per cent. it ranged from 145 to 200 mm.

BLOOD PRESSURE IN CHILDREN

May Michael,[22] after a study of the blood pressure in 350 children, came to the conclusion that the blood pressure in children increases with age principally because of the increase in height and weight, as she found that children of the same age but of different weights and heights had different blood pressures. Sex in children makes no difference in the blood pressure, it being determined by the height and weight.

Judson and Nicholson[23] made 2,300 observations in children of from 3 to 15 years of age, and found there was a gradual increase in the systolic blood pressure from 3 to 10 years, and a more rapid rise from 10 to 14, with a rapid elevation during the fourteenth year, or the age of puberty. The systolic pressure varied from 91 mm. in the fourth year to 105.5 in the fourteenth year, while the diastolic pressure remained almost at a uniform level. The pressure pulse, therfore, increased progressively with the increase of the systolic pressure.

BLOOD PRESSURE AND INSURANCE

An epitome of the consensus of opinion of the risk of accepting persons for insurance as modified by the blood pressure is presented by Quackenbos.[24] Some companies have ruled that at the age of 20 they will take a person with a systolic pressure up to 137; at the age of 30 up to 140; at the age of 40 up to 144; at 50 up to 148, and at 60 up to 153, although some companies will not accept a person who shows a persistent systolic pressure of 150. Quackenbos says that when persons with higher blood pressures than the foregoing have been kept under observation for some time, they sooner or later show albumin and casts in the urine. In other words, this stage of higher blood pressure is too frequently followed by cardiovascular-renal disease for insurance companies to accept the risk.

On the other hand, too low a systolic pressure in an adult, 105 mm. or below, should cause suspicion of some serious condition, the most frequent being a latent or quiescent tuberculosis. Such low pressure certainly shows decreased power of resistance to any acute disease.

Statistics prove that there are more deaths between the ages of 40 and 50 from cardiovascular-renal disease, that is, from heart, arterial and kidney degenerations, than formerly. Whether this is due to the high tension at which we all live, or to the fact that more children are saved and live to middle life, or whether the prevention of many infectious diseases saves deficient individuals for this middle life period, has not been determined. Probably all are factors in bringing about these statistics.

While the continued use of alcohol may not cause arteriosclerosis directly, it can cause such impaired digestion of foods in the stomach and intestine, and such impaired activity of the glands, especially the liver, that toxins from imperfect digestion and from waste products are more readily produced and absorbed, and these are believed by some directly or indirectly to cause cardiovascular-renal disease. Hence alcohol is an important factor in causing the death of persons from 40 to 50 years of age.

The question of whether or not a person smokes too much, and what constitutes oversmoking, will soon be asked on all insurance blanks. As tobacco almost invariably raises the blood pressure, and when the blood pressure again falls there is again a craving in the man for the narcotic, it must be a factor in producing, later in life, cardiovascular-renal disease. Hence an increased systolic blood pressure must be in part interpreted by the amount of tobacco that the person uses.

(To be continued)

16. Bailey: Am. Jour. Med. Sc., May, 1911, p. 709.
17. Woley, H. P.: The Normal Variation of the Systolic Blood Pressure, THE JOURNAL A. M. A., July 9, 1910, p. 121.
18. Lee: Boston Med. and Surg. Jour., Oct. 7, 1915.
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20. Nicholson: Am. Jour. Med. Sc., April, 1914, p. 514.
21. Faber: Ugeskrift f. Læger, June 10, 1915.
22. Michael, May: A Study of Blood Pressure in Normal Children, Am. Jour. Dis. Child., April, 1911, p. 272.
23. Judson, C. F., and Nicholson, Percival: Blood Pressure in Normal Children, Am. Jour. Dis. Child., October, 1914, p. 257.
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SATURDAY, JULY 29, 1916

THE QUESTION OF PROTECTIVE ENZYMES IN THE BLOOD

Not long ago, in a review of certain features of the so-called Abderhalden reaction, attention was directed to the accumulating evidence of its nonspecificity.[1] The original claims made for the reaction have given rise to extensive series of investigations on the proteolytic enzymes of blood. The fundamental question is whether protein-splitting capacities develop in the blood in response to the introduction of foreign protein so that the serum will cause digestion when it is allowed to act on the protein injected. Much of the controversy has centered in the efficiency of the experimental technic employed. For this reason nearly all recent investigators in this domain have attempted to apply methods which will be reasonably devoid of sources of error and free from the bias of personal judgment.

At the University of Pennsylvania, Hulton[2] has lately tested the response of rabbits to a number of well-characterized isolated proteins, including protamin, casein, Bence-Jones protein, phaseolin, edestin, gliadin, soy bean globulin and lactalbumin. The results show plainly in all cases, to quote the investigator, that under the conditions of the experiment there is practically no digestion with the blood of the injected animal in excess of that which takes place with the serum of the normal control animal. The greatest amount of digestion takes place in the case of the Bence-Jones protein and milk albumin, which would naturally be expected, as these two proteins are more nearly related to mammalian proteins. It is further stated that the results would also lead one to suppose that the blood of the rabbit possesses to a slight degree proteolytic activity, but that this activity toward a particular protein is not increased by injecting the animal with that protein. The criticism might be offered that these proteins are too foreign; but if the reaction must be discriminated on the basis of the protein being just foreign enough, it would seem that the possibility of usefulness becomes remote.

There is at present no reason for believing that the normal hydrolysis of the protein of the body occurs in the circulating blood. Metabolic changes of the sort postulated presumably belong to the tissue cells. Hulton offers a new view for consideration. It is easily possible, she says, to imagine introduced foreign protein being taken into the body cells and hydrolyzed there, without any reaction appearing in the circulating plasma. It may be shown that foreign protein introduced into the venous blood may be taken up by the tissues. In like manner, it might be imagined that the placental cells entering the maternal circulation would be held and hydrolyzed within the tissues, and leave no trace of any enzymic or other activity in the circulating plasma. In theory, therefore, one must separate the question of hydrolysis of foreign proteins from the question of the reaction of the maternal body to placental cells. It is entirely possible that there is a specific reaction of the host to placental cells or to neoplasms, without this being a hydrolysis of their proteins in the circulating blood dependent on the presence there of enzymic activity. This hypothesis leads us far away from the original contention on the basis of which the investigations of protective ferments have heretofore been planned.

1. The Specificity and Utility of the Abderhalden Reaction, editorial, The Journal A. M. A., April 8, 1916, p. 1117.
2. Hulton, Florence: The Formation of Specific Proteoclastic Ferments in Response to the Parenteral Injection of Foreign Proteins, Jour. Biol. Chem., 1916, xxv, 163.

NEW STUDIES OF EXOPHTHALMIC GOITER

The confusion which exists in respect to the treatment of exophthalmic goiter is indicated by the remark[1] that men trained to think surgically are apt to regard exophthalmic goiter altogether too much from a surgical standpoint, and internists from the standpoint of internal medicine, while men who have had much experience are liable to follow the method of treatment with which they have been most successful in the past, without due regard to whether or not the present case fits into the frame of the former cases. Physicians will therefore agree with Du Bois[2] that "there is a great need of some purely objective test in hyperthyroidism to indicate the effect of treatment, since psychotherapy can modify profoundly all subjective symptoms. At present the scientific status of the treatment of exophthalmic goiter is about at the point where we would be with diabetes if there were no laboratory tests for glucose and the acetone bodies."

What shall be the index to the severity and course of the disease? The rapidity of the heart, characteristic as it may be, is not a symptom confined to one disease; and a heart may be damaged beyond repair while other symptoms subside. The thyroid gives uncertain and variable objective manifestations in

1. Handbook of Therapy, Chicago, the American Medical Association, 1915, p. 362.
2. Du Bois, E. F.: Clinical Calorimetry, Fourteenth Paper, Metabolism in Exophthalmic Goiter, Arch. Int. Med., June, 1916, p. 915.

exophthalmic goiter. Other pathologic manifestations are present, but often are inconstant or unspecific. The picture of disease presented by the syndrome of effects is a help to the clinician, yet it has an element of extreme uncertainty when one desires to establish unmistakably either progress or decline. Clinical calorimetry, to which extended reference was made last week,[3] has demonstrated new possibilities of prognosis. To those who are accustomed to think in terms of the energy requirement, says Du Bois,[2] exophthalmic goiter stands out *par excellence* as the disease of increased metabolism, and the increased metabolism stands out as the chief symptom of hyperthyroidism. The determination of the heat production seems to afford the best index of the severity and course of the disease. An increased basal metabolism is found with great regularity in exophthalmic goiter, and in severe cases reaches a level found in no other condition. On the other hand, in cretinism and myxedema the metabolism is lower than in any other disease. The administration of thyroid extract, particularly in myxedema, raises the heat production. All other diseases in which metabolism is increased are easily distinguishable from exophthalmic goiter, and they never approach the extremes found in this condition. The basal metabolism is higher than normal in youth, in fever, in lymphatic leukemia and pernicious anemia, in severe cardiac disease, and in some cases of severe diabetes and cancer. It is lower than normal in old age, in some wasting diseases, and perhaps in some cases of obesity. Diseases of the ductless glands other than the thyroid show in some cases an increase, in some a decrease; but these are comparatively small.

From the standpoint just discussed, the measurements made by Du Bois with the Sage calorimeter are highly significant. They throw light on some of the theories held in regard to the etiology of exophthalmic goiter. Very severe cases show an increase of 75 per cent. or more above the normal average, severe cases 50 per cent. or more, and moderately severe and mild cases less than 50 per cent., while a few mild and several atypical cases, or cases in which operation has been performed, may be within normal limits. In severe cases the warmth of the skin and sweating can be accounted for entirely by the necessity for the increased elimination of heat. At least a part of the tachycardia is due to the increased metabolism, and perhaps it might be possible to reproduce the extreme tachycardia, the cardiac enlargement, emaciation and mental irritability if we were able to stimulate the metabolism of normal men for twenty-four hours a day over a period of months or years. The specific dynamic action of protein and of glucose is within normal limits, and there is no consistent difference between the effects of protein in meat and an equal amount in milk and eggs. One patient was able to derive 89 per cent. of his calories from carbohydrate in an experiment when he was showing an alimentary glycosuria. There is evidently no interference with the oxidation of carbohydrates.

Using the level of the heat production ascertained by clinical calorimetry as an index of the effect of medical treatment, Du Bois and his colleagues conclude that there is as yet no proof that any conservative form of treatment causes a greater reduction of metabolism than mental and physical rest. Ligation of the thyroid arteries with three out of the four patients studied caused a distinct rise in metabolism, the duration of which was uncertain. On the other hand, rest in bed for a week or more caused a drop of more than 10 per cent.

Many physicians of large experience will heartily agree with Du Bois that in the treatment of hyperthyroidism, "calorimeters and other forms of respiratory apparatus seem to be therapeutic nihilists." Mental and physical rest, he contends, is the surest means of securing the drop in the metabolism which indicates a diminution in the pernicious activity of the thyroid. Psychotherapy is of some value, and this combined with rest may account entirely for the improvement following most of the so-called medical cures. It is quite possible that some of the numerous current or now discarded procedures control some of the minor symptoms of the disease or render the major symptoms less apparent to the patient and his physician. We cannot consider the patient to be anywhere near a cure until the metabolism has approached the normal. We cannot consider a therapeutic agent to be curative unles it causes the metabolism to approach the normal more quickly than the tendency toward spontaneous improvement aided by mental and physical rest.

The new studies of Du Bois ought to make it sufficiently clear, furthermore, that patients with exophthalmic goiter need large amounts of food. In general he finds that they require from one and a half times to twice as much food as a normal person under similar circumstances. The severity of the case and the degree of muscular activity must obviously be taken into consideration. Unless food of high caloric value is given in large amounts, losses of body fat and protein may occur.

In contrast with these effects of what we may tentatively speak of as hyperthyroidism, the conditions pertaining in hypothyroidism as exemplified in cretinism are equally striking. One small cretin 36 years old produced about half the calories eliminated by children of his size. As estimated by the surface area, his metabolism was about 20 per cent. below the normal adult level. Three and a half days of treatment with thyroid extract raised his heat production to normal.

3. Clinical Calorimetry, editorial, THE JOURNAL A. M. A., July 22, 1916, p. 286.

DEATH RATES OF CITIES

The comparison of the crude death rates of cities for the purpose of determining relative "healthfulness" has long been a favorite pastime for some newspaper writers, and even, it must be said, in some municipal health departments. The complexity of the problem and the multiplicity of the factors involved, however, have deterred professional statisticians from attaching much importance to such comparisons. The principal objection to the use of crude death rates—the annual number of deaths per thousand population—as a measure of healthfulness is that it takes no account of the age and sex distribution of the population. Since the proportion of the sexes and of the population of each age group varies considerably in different places, and since the death rate in each group is different, it is plain that crude death rates may give quite misleading information as to actual conditions. Two communities having identical death rates in each age group may have crude death rates widely apart if, for example, in one of the communities there is a marked preponderance of one age group, say the group from 15 to 24 years, in which the mortality is low. An interesting attempt to meet this difficulty has been made by analyzing the vital statistics of certain American cities and comparing the death rates from specific causes, such as infant mortality, tuberculosis and typhoid fever.[1]

Great differences are found among the fourteen cities chosen for comparison. As might be expected, the rating in "healthfulness" differs according to whether the crude death rate or the "standardized" death rate corrected with reference to the age and sex distribution of the population is used. Thus Los Angeles, which ranks fifth in the list based on crude death rates, jumps to second place (next to the lowest death rate) when considered in the order of the standardized death rates. There are even greater differences in the order of the cities when arranged according to death rates from specific causes. On the basis of the figures employed by Harmon, the city of Cincinnati holds a very good position (first) as respects typhoid, but very poor (eleventh) as respects tuberculosis. Pittsburgh has a poor rating in general, but stands high with respect to tuberculosis. New Orleans makes a poor showing with reference to typhoid and tuberculosis, but has the best record of all with regard to scarlet fever and whooping cough.

Unfortunately, infant mortality could not be calculated satisfactorily for more than eight of the fourteen cities, owing to that crying disgrace of American statistical practice, the lack of adequate birth registration. The incomplete figures available indicate that the divergence of ratings under this head is fully as great as in other cases. It is curious that Buffalo should apparently suffer from a much higher infant mortality rate than St. Louis, in view of the influence thought to be exerted on infant mortality by summer heat.

It must be confessed that such analyses as the excellent one here cited are of limited value in determining the relative "healthfulness" of cities or the relative efficiency of health administration. The factor of climate may be favorable to a low death rate from certain causes, but may conduce to a high death rate from others. The city of Los Angeles presents the extreme case of a high death rate from tuberculosis due, not to the insalubrious character of the climate for persons with this disease, but to its advantageous nature. Some puzzling questions are raised by certain figures in Harmon's summary, such as the great gap between the tuberculosis rating of Pittsburgh (second) and the pneumonia rating (fourteenth) of the same city. In any given case it may be impossible to decide whether the high rate from specific infection is due to uncontrollable climatic conditions, to the inadequacy of public health measures, to the conditions existing in the neighboring outlying territory, or even in some cases to purely statistical variations, such as the local traditional methods of report and record.

1. Harmon, G. E.: Quart. Pub., Am. Statistical Assn., 1916, xv, 157.

GASTRIC ULCER AND GASTRIC ACIDITY

Although the pathogenesis of gastric ulcer has long been associated in the minds of clinicians with the peculiar qualities of the gastric juice, a direct interrelationship is far from being demonstrated, and other etiologic factors must now be taken into account. It is doubtless true that gastric ulcer may occur wherever gastric juice flows. Whatever the relation between this secretion and the lesion may be, healing is apparently prevented in some way by the action of the gastric juice. Sippy[1] has shown, in his treatment of gastric ulcer, that the gastric acidity appears to play an important rôle in establishing chronic ulcer. The neutralization of the gastric juice by the continued administration of alkalies, accordingly, appears to facilitate the cure of a large number of chronic gastric and duodenal ulcers.

To the varied conditions long regarded as possible factors aiding in ulcer formation, an added agency has demanded serious consideration in recent years. The intervention of bacteria in some stage of the genesis of such necrotic areas has been brought into prominence. Readers of The Journal will recall that Rosenow[2] produced chronic and acute gastric ulcers in dogs by intravenous injections of certain strains of streptococci. He showed that pure cultures of streptococci isolated from gastric ulcers in man, dog, cattle or sheep, when injected intravenously into dogs and

1. Sippy, B. W.: Gastric and Duodenal Ulcer, Medical Cure by an Efficient Removal of Gastric Juice Corrosion, The Journal A. M. A., May 15, 1915, p. 1623.

2. Rosenow, E. C.: The Etiology of Articular and Muscular Rheumatism, The Journal A. M. A., April 19, 1913, p. 1223; Elective Localization of Streptococci, Nov. 13, 1915, p. 1687.

rabbits, produced typical gastric ulcers in a large percentage of the experiments. Whether the chronicity of this type of ulcer is due entirely to the streptococcus infection, or to the combined action of the streptococci and the corrosive action of the gastric juice, has not been proved experimentally.

It has been asserted[3] that gastric ulcers can be produced quite uniformly in certain species by intravenous injections of the *Bacillus coli*. A recent investigation of this subject, at the Hull Physiological Laboratory of the University of Chicago, by Hardt,[4] has failed to substantiate this behavior of the organisms of the colon type; but the work of Rosenow with streptococci actually isolated from gastric ulcers has been confirmed. The availability of a fairly dependable method of creating ulcers has further given an opportunity to study the mooted question of the behavior of the gastric acidity when ulcers are present. The extremely contradictory character of the statements hitherto made may be due to the fact that clinicians are usually dealing with a mixture of juices (bile, saliva and pancreatic and gastric secretions) in the specimens which they subject to analysis. A refinement in the technic was introduced in the Chicago laboratory by examining the gastric secretion in dogs with a Pawlow stomach pouch, which prevents the admixture of the contents of the rest of the alimentary canal. When gastric and duodenal ulcers were produced by streptococci as the result of Rosenow's procedure, it was found that there is no hyperacidity in the gastric juice under these experimental conditions. Hypersecretion was rarely encountered. Mechanical factors and corrosive action of the gastric juice were largely eliminated by the way in which the experiments were carried out. Therefore the production and chronicity of the gastric ulcers must be dependent primarily on the virulence of the streptococcus infection. The hematogenous origin of the infection is further demonstrated in the unsuccessful attempt to produce chronic ulcers by local injections of streptococci into the submucosa of the Pawlow pouch. Probably in the future less stress will be laid on the factors of acidity, secretion and mechanical obstruction in certain aspects of the ulcer problem.

3. Steinharter: Lancet-Clinic, 1914, iii, 88; Boston Med. and Surg. Jour., 1913, clxix, 81.
4. Hardt, L. L. J.: Contributions to the Physiology of the Stomach, XXXIII, The Secretion of Gastric Juice in Cases of Gastric and Duodenal Ulcers, Am. Jour. Physiol., 1916, xl, 314.

Dirt.—To the sanitarian, dirt includes rubbish, manure, and organic wastes of all kinds. It may be the vehicle, but not the source, of infection. It breeds and harbors flies, fleas, lice, rats, mice and vermin of all sorts that act as intermediate hosts or carriers of infection. While dirt cannot originate typhoid fever or other infections, it favors conditions which encourage the spread of such diseases. Rubbish in vacant lots, in back yards, and in alleys, in cellars, garrets and other places may be taken as an index of the failure to appreciate the modern teachings of hygiene and sanitation. It was once the chief duty, and still is an important one, of the health officer to insist on cleanliness of premises and surroundings, both in country and city.—Rosenau.

Current Comment

LIFE INSURANCE AND ALCOHOL

An interesting analysis of the experience of American life insurance societies in respect to the mortality among abstainers from alcohol, temperate users and moderate users is presented in the current bulletin of the city of New York health department.[1] Dividing the policy holders into three classes according to whether they are total abstainers, temperate users or moderate but habitual users of alcohol, it is shown that the mortality of the first class is about 15 per cent. less than that of the second, and about 25 per cent. less than that of the third. This much diminished mortality among total abstainers as compared with nonabstainers is marked even when the general section of a company's policyholders, that is, the nonabstainers, presents a mortality experience which is favorable as compared with that of other companies. For example, in the case of one such company in 1906-1910, the mortality in the abstainers' section was 40 per cent. less than that in the general section, and in the years 1911-1915, 35 per cent. less. Results are given of investigations into the subsequent history of those who have at one time drunk to excess and of those who have undergone an alcohol cure. In neither case is the risk a good one from the insurance point of view. The importance of these statistics is derived from the fact that they have not been collected for controversial purposes by parties holding a brief against alcohol, but are the figures by which commercial organizations, whose interest in the matter is purely financial, are guided in fixing premiums. While there can be no doubt left in the mind of any one who reads this paper that even the moderate use of alcohol shortens life, the writer of it remarks that the relatively low mortality among abstainers is not solely attributable to abstinence from alcohol, but it is due to "temperance in all things and total abstinence from alcohol."

AN INFANT MORTALITY RATE OF ZERO

Dr. S. G. Moore, medical officer of health at Huddersfield, England, states[2] that when he first learned that at Villiers-le-Duc, a little commune in the south of France, the infant mortality rate had been zero for ten years, he did not believe it; it seemed incredible. Application to the French Academy of Medicine, however, brought confirmation in the form of official documents, showing that between 1893 and 1903 no child under 1 year of age had died in Villiers-le-Duc, and no mother had died in childbirth. The infant mortality rate for the preceding ninety years had been from 20 to 30 per hundred, except during the period from 1854 to 1863, when it fell to 15 per hundred. This fall during the 1854-1863 period is attributed to the incumbency of a mayor who, though unacquainted with medicine, was much interested in public health and particularly in children. Similarly, the zero rate from

1. Hunter, Arthur: Life Insurance and Drinking Habits, Monthly Bulletin of the Department of Health, New York City, May, 1916.
2. Moore, S. G.: Infantile Mortality and the Relative Practical Value of Measures Directed to Its Prevention, Lancet, London, May 6, 1916, p. 913.

1893 to 1903 is said to be due to measures taken by another mayor, the son of the one just mentioned. When M. Morel de Villiers, the son, took office in 1884, he, too, knew nothing of medicine, but his interest in saving the lives of babies led him to study medicine. The measures which he has introduced in Villiers-le-Duc include the following: Every pregnant woman, married or unmarried, lacking the means to provide for her own welfare and that of her child, has a right to assistance from the village authorities, for which she must apply before the seventh month. The midwife selected by the woman must make an examination, and, if she finds albuminuria, dangerous presentation or other untoward condition, must notify the village authorities, who shall then provide the woman with the services of a physician to be selected by her. The mother is to receive a grant for the six days following her confinement, provided she remains in bed. Nurses or mothers who can show healthy nurslings a year old are also entitled to municipal grants. Other regulations provide for the sterilization of milk and for the welfare of infants placed out to nurse. Dr. Moore emphasizes particularly the value of the compulsory features of the plan, and of the notification of pregnancy. In connection with the results, of course, it must be remembered that Villiers-le-Duc is a small village with simple, rural conditions of life. In the absence of statistics which Dr. Moore has either omitted or been unable to give (population of the community, number of births, and changes in population due to emigration), it is impossible to place a correct value on the infant mortality rates. Notwithstanding, the measures enforced by Dr. Morel de Villers are interesting and a more complete statement of the factors which have contributed to the results would doubtless be instructive.

THE BLOOD IN INTESTINAL OBSTRUCTION

It is sometimes almost as important to know the exceptions to a diagnostic rule as to appreciate its less variable indications. In the more recent development of clinical diagnosis through analysis of the blood, the occurrence of abnormally high values for the noncoagulable nitrogen of the blood has become associated quite extensively with the existence of renal disease. Recent observations by Cooke, Rodenbaugh and Whipple,[1] of the George Williams Hooper Foundation for Medical Research at San Francisco, indicate that a high content of noncoagulable blood nitrogen exists in most cases of intestinal obstruction, especially with signs of acute intoxication. This finding is not entirely new, inasmuch as other observations in harmony with them have already been reported in man.[2] But these later investigations have the added value of being fortified by carefully controlled experimental conditions, intestinal obstruction being artificially induced in most of the cases. In practically all of them the kidneys were normal. With acute intoxication the rise in noncoagulable nitrogen may be rapid and reach as high as even ten times the normal. With more chronic intoxication little or no rise may ensue. From a clinical standpoint the high figures are looked on as indicative of a grave intoxication. It is not easy to account for the apparent accumulation of noncoagulable nitrogenous substances in the blood stream in the absence of any kidney impairment. The California investigators point out, however, that in intestinal obstruction the current of fluid is mainly out of the body and by way of the intestinal tract. The kidneys ordinarily excrete only small amounts of highly concentrated urine. Furthermore, if proteoses find their way from the obstructed bowel into the circulation, as Whipple and his associates have long maintained, a resulting proteose intoxication may injure the body and lead to tissue destruction with consequent alterations in the blood quite independent of any impaired renal function. The observed definite rise in noncoagulable nitrogen in the blood in general peritonitis may be explained on this basis in connection with the paralytic ileus that attends it, as well as on the basis of intoxication with absorbed proteose which has been demonstrated to arise in the exudate present in this disease.

1. Cooke, J. V.; Rodenbaugh, F. H., and Whipple, G. H.: Intestinal Obstruction, VI, A Study of Non-Coagulable Nitrogen of the Blood, Jour. Exper. Med., 1916, xxiii, 717.

2. Tileston, Wilder, and Comfort, C. W., Jr.: The Total Non-Protein Nitrogen and the Urea of the Blood in Health and Disease, as Estimated by Folin's Methods, Arch. Int. Med., November, 1914, p. 620.

COLORED FOODS

The federal Food and Drugs Act, now in force throughout the United States, has justified itself quite as much by the educational influences which it has put into operation as by any protection which it has afforded to the innocent purchaser or the exposed consumer. As the result of the agitation which the enforcement of the law always provokes, it has brought to light some of the perverted tastes and foolish demands which the prolonged indulgence in misguided beliefs has created. We may recall the popularity of "coppered" peas, of brilliantly colored jams, jellies, fruit juices and candies, of tinted beverages of both alcoholic and nonalcoholic character, and of butter with an artificially deep yellow color to resemble perennially the natural June product. Street has wittily sensed the situation by remarking that too often "our tables become laden with foods of rainbow hues in the attempt to appeal to perverted senses and jaded appetites."[1] It may be a relief to those who are looking for better days in the domain of food manufacture to realize that according to the watchful government analysts few mineral pigments are longer used. Iron oxid, Prussian blue, copper sulphate and other poisonous mineral pigments have been abandoned by necessity of law or correction of nefarious practices. The great majority of the artificial colors used belong to the class of coal-tar products known as anilin dyes. Unfortunately, says Street, the United States government, chiefly in answer to the clamor of business interests, soon after the passage of the federal Food and Drugs Act of 1906, granted permission to use seven coal-tar dyes in foods, the so-called permitted colors. However harmless these may be in the quantities actually used and under the best conditions of inspection

1. Street, J. P.: Artficially Colored Foods, Mod. Hosp., July, 1916, p. 33.

employed, they nevertheless encourage a sort of deception for which the manufacturer is only partly responsible in ultimate analysis. When the public once is thoroughly taught, if it ever can be, that the artificial devices which please the eye can be used not only for psychologic effects but also for the purpose of deception by concealing inferiority, the burden of knowledge and the danger of injustice will be placed where it properly belongs. An intelligent people cannot expect the government forever to be everything in all things to its members. Some effort and initiative is demanded of all citizens of a free country. In the matter of food colors, Street's advice is sane: The consumer cannot tell, even if it be a permitted color, whether it is pure and free from poisonous contamination. The consumer has but one safe course to pursue — to read the label carefully, intelligently and unremittingly. Whenever evidence is found that artificial color has been used, he must decide whether he is willing to accept the responsibility or prefers to exclude that particular brand from his home.

NEBRASKA STATE MEDICAL JOURNAL

At its last meeting, the Nebraska State Medical Association voted to publish its own journal, and the first number is now received. Dr. Irvin S. Cutter, Omaha, is editor, and Dr. Joseph M. Aiken, secretary of the state association, is business manager. The new journal makes a neat appearance. One wonders why the word "State" should have been inserted in the title. "*Nebraska Medical Journal*" would be shorter and more euphonious and would tell all that the publication represents. This is, however, a minor criticism. There are now twenty-nine state owned journals representing thirty-three state associations. With the exception of the *Illinois Medical Journal*, all limit their advertising of proprietary medicines to those accepted by the Council on Pharmacy and Chemistry of the American Medical Association. As stated above, thirty-three state associations are now journalizing their transactions. Those who look back to that time when a single more or less bulky volume of *Transactions* was issued anywhere from four to ten months after the annual meeting — then usually "shelved" unopened — will appreciate the tremendous advance that has been made by the constituent associations in this respect.

Effects of Alcohol.—"Wine makes a man better pleased with himself. I do not say that it makes him more pleasing to others. Sometimes it does, but the danger is that while a man is better pleased with himself, he may be growing less pleasing to others. Wine gives a man nothing. It neither gives him knowledge nor wit. It only animates a man and enables him to bring out what a dread of the company has repressed. It only brings into motion what has been locked up in frost, but this may be good or it may be bad."

Q.—"So, sir, wine is a key which opens a box but this box may be either full or empty?"

Johnson.—"Nay, sir, conversation is the key. Wine is a pick lock which forces open the box and injures it. A man should cultivate his mind so as to have that confidence and readiness without wine which wine gives."—Boswell, Life of Johnson.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Baby Clinic.—The Peoria *Journal* Milk and Ice Campaign made possible the opening on July 12 of a Baby Clinic and Dispensary at the Douglas School, Peoria. The clinic will be open once each week for the examination of babies of the city, and will be under the care of Dr. Fred M. F. Meixner.

Personal.—Dr. Frederick C. Vogt, Gillespie, who was operated on at the Litchfield Hospital, July 12, is reported to be making satisfactory progress toward recovery.——On account of the illness of Dr. Jeremiah H. Stealy, the Freeport General Hospital which he and Mrs. Stealy have conducted for the past three years has been closed.

Chicago

Personal.—Dr. Haim I. Davis, formerly superintendent of the Cook County Psychopathic Hospital, has been appointed a member of the attending staff of the Michael Reese Hospital in the department of neurology.——Dr. Kellogg Speed is in charge of the Twenty-Third General Hospital for the British Expeditionary Forces, at Etaples, France.

Conference on Mental Defectives.—A conference on mental defectives was held in the County Court Building, July 24, on invitation of Judge Thomas F. Scully. The medical members of this conference were: Drs. Anna Dwyer, Morals Court; William Healy, Juvenile Court; William J. Hickson, psychopathic expert of the Municipal Court; Charles E. Sceleth, House of Correction; Anna E. Isham, Psychopathic Hospital; Henry J. Gahagan, superintendent of the State Hospital at Elgin; Ralph A. Goodner, superintendent of the State Hospital at Kankakee; Adam Szwajkart, superintendent of the Psychopathic Hospital; Mr. Clayton F. Smith, warden of the County Hospital; John Dill Robertson, city health commissioner; George Leininger, superintendent of the Chicago State Hospital; James Whitney Hall of the county's staff of alienists; Edgar M. Reading, Loyola University; Herman C. Stevens, University of Chicago; Dennis P. Russell, Psychopathic Hospital, and Harold N. Moyer, city psychopathic ward.

MONTANA

Health Officers' Meeting.—The City and County Health Officers of Montana held their annual meeting in Miles City, July 10 and 11, under the presidency of Dr. Arthur Morrow, Kalispell, at which Dr. Victor C. Vaughan, Ann Arbor, Mich., delivered an address on "The Eradication of Disease." Dr. Joseph C. Denney, Clydepark, was elected president of the association; A. N. Allard, Billings, vice president, and Dr. William F. Cogswell, Helena, was reelected secretary.

State Association Meeting.—The thirty-eighth annual meeting of the Medical Association of Montana was held in Miles City, July 12 and 13, under the presidency of Dr. Rudolph Horsky, Helena. Kalispell was selected as the next place of meeting, and the following officers were elected: President, Dr. John A. Donovan, Butte; vice presidents, Drs. Arthur Morrow, Kalispell; Robert H. Beach, Glendive, and Arthur C. Jones, Butte, and secretary-treasurer, Dr. Elmer G. Balsam, Billings (reelected). The principal address of the meeting was delivered by Dr. Victor C. Vaughn, Ann Arbor, Mich., on "The Protein Poison and the Part it Plays in Disease."

NEBRASKA

Personal.—Dr. Herschell B. Cummings, Seward, has been reappointed a member of the state board of health.——Dr. William D. Jack, Omaha, has returned after six months' war service in Flanders.

Health Secretaries Elect.—At the meeting for reorganization of the Board of Secretaries of the State Board of Health at Lincoln, July 12, Dr. Charles T. Burchard, Falls City, was reelected president; Dr. Herschell B. Cummings, Seward, was elected vice president; Dr. E. Arthur Carr, Lincoln, was elected secretary, and Dr. Lucien Stark, Hartington, was reelected treasurer.

New Hospital.—Messrs. Charles L. Coolidge and Charles L. Houghton of Palmer have donated their entire properties, part available immediately and the remainder at their death, to the Coolidge Hospital and Sanatorium Association, Palmer, for the erection and endowment of a small hospital and sanatorium. Other donations have been received from citizens of the village and surrounding country. The building is to be of brick and will be ready about October 1. It is to be called the Coolidge Hospital and Sanatorium, after the principal donor.

NEW YORK

Personal.—Dr. Ross M. Chapman, Binghamton, has been appointed assistant superintendent of the Government Hospital for the Insane, Washington, D. C. Dr. Chapman is at present connected with the New York State Hospital, at Binghamton. He will fill a position that has been vacant for more than a year.——Dr. Bertis R. Wakeman, Watertown, district sanitary supervisor of the northern district for the state department of health, has been transferred to Hornell.

Infantile Paralysis Up-State.—The state health department announced, July 21, that up to that date there have been in all 195 cases of infantile paralysis, with twenty-three deaths. Governor Whitman has promised state health department officials additional funds to carry on the campaign against infantile paralysis. Arrangements have been made for several additional diagnosticians, sanitary supervisors, nurses and assistants for Westchester, Ulster, Orange and Sullivan counties. The state department of health announces that in 1914 there were 224 cases of infantile paralysis in the state, with sixty-eight deaths, while in 1915 there were 261 cases and forty-seven deaths.

Psychiatric Clinic for Convicts.—With the return of Thomas Mott Osborne as warden to Sing Sing Prison, it is announced that one of the innovations will be the instalment of a complete psychiatric clinic, wherein old prisoners as well as new arrivals will undergo thorough mental examination. The clinic has for its object the separation of the feeble-minded and mentally disabled prisoners from the normal group. The Rockefeller Foundation has contributed the money for this undertaking. Dr. Bernard Glueck, Washington, D. C., will become resident psychiatrist, and will have a staff of assistants. Mr. Osborne announces that this is but the forerunner of a plan on which he is now working in cooperation with the National Committee on Prisons to turn Sing Sing into a great receiving station, where prisoners can be observed, classified and then placed in the hands of experts to receive medical treatment and individual training which their particular cases demand.

New York City

Change of Name.—The International Health Commission of the Rockefeller Foundation announces the change of its name to International Health Board of the Rockefeller Foundation.

Personal.—Dr. Thomas A. Storey, director of physical training in the College of the City of New York, has been appointed state inspector for physical training of the Military Training Commission for the state of New York.——Dr. Elbert M. Somers, for about five years superintendent of the Brooklyn State Hospital, has resigned, to take effect August 1.——Dr. Abraham Sophian, for many years in the research laboratory of the department of health, has been engaged by Bridgeport, Conn., to take charge of that city's campaign against infantile paralysis.

Promotions at Rockefeller Institute.—The following promotions and changes have been announced for the Rockefeller Institute of Medical Research: Dr. Alphonse R. Dochez, hitherto an associate in medicine, has been made an associate member. Dr. Henry T. Chickering has been appointed resident physician in the hospital to succeed Dr. Dochez. Dr. Louise Pearce and Dr. Frederick L. Gates, Montclair, N. J., have been appointed associates in pathology and bacteriology. Dr. Oswald H. Robertson has been appointed assistant in pathology and bacteriology and Mr. Ernest Wildman, assistant in chemistry; Dr. Roda Erdmann has been appointed associate in the department of animal pathology; Dr. Rufus A. Morison, assistant in medicine and assistant resident physician; Dr. John Northrop, assistant in the department of experimental biology; Dr. Jean Oliver, assistant in the department of pathology and bacteriology; Dr. Ernest W. Smillie, fellow in the department of animal pathology, and Dr. William D. Witherbee, assistant. Hardolph Wastenays, hitherto an associate in the department of experimental biology, has accepted an appointment as associate professor of pharmacology in the University of California.

The Poliomyelitis Situation.—The number of cases of poliomyelitis reported up to July 21 is 2,527, and the total number of deaths 519. The number of cases reported daily has been gradually decreasing during the past week, and though no positive statements are made, it is hoped that the epidemic is on the wane.——The new cases reported, July 22, totaled 135, with 39 deaths. Of the new cases 82 with 16 deaths occurred in Brooklyn; 23 with 10 deaths in Manhattan; 17 with 6 deaths in Queens; 8 with 3 deaths in Richmond, and 5 with 4 deaths in the Bronx. On that date there were 1,294 cases of poliomyelitis in hospitals, including 826 in department hospitals, 144 in other city hospitals; 268 in private hospitals, and 56 at Swinburne Island. The number of private hospitals cooperating with the department of health in caring for infantile paralysis is now twenty-four.——Persons desiring to take their children out of the city are required to have permits from the department of health. Certificates are issued provided the children do not come from infected districts and do not show any symptoms of contagious disease. This ruling has been extended so that the certificate of a reputable physician who examines the child in his or her home will also be accepted. The certificates are issued in triplicates, one being filed with the department of health, one sent to the health officer of the locality to which the child is going, and one is kept by the parent or attendant accompanying the child.

NORTH DAKOTA

New Medical Board Appointments.—The following appointments on the State Board of Medical Examiners were announced July 15: Dr. Gustavus J. McIntosh, Devils Lake, to succeed Dr. Francis Peake, Jamestown; Dr. Joseph G. Dillon, Fargo, to succeed Dr. Albert W. Skelsey, Fargo, and Dr. George M. Williamson, Grand Forks, reappointed. At the meeting of the board July 15 the state license of Dr. Heber Wilbur Coulter, Sharon, is said to have been revoked. The license, issued by the board in 1913, was obtained through reciprocity with South Dakota, and the board on investigation discovered that Heber Wilbur Coulter had apparently been licensed under the application of Herbert Coulter and was not the man certified by the South Dakota board. Dr. Coulter was notified to appear at the meeting and show cause why his license should not be appealed. He did not appear, and the board therefore revoked his license to practice.

PENNSYLVANIA

Personal.—Dr. James E. Silliman, Erie, has been elected medical director of the Pennsylvania Department of the Grand Army of the Republic.——Dr. Edgar M. Green, Easton, has been appointed a member of the advisory board of the state department of health, to fill the vacancy caused by the death of Dr. George W. Guthrie, Wilkes Barre.——Drs. Astley P. C. Ashhurst and John H. W. Hreine, assistant surgeons at the Plattsburg Military Camp, have been advanced to the rank of first lieutenants. Lieutenant Ashhurst has been assigned to the Sixth, and Lieutenant Hreine to the Seventh Regiment.——Dr. Joseph K. Weaver, Norristown, has been reappointed a member of the State Board of Prison Inspectors.

Philadelphia

Physicians and Red Cross Work.—A call was issued to 2,500 physicians of Philadelphia and the adjoining counties to attend a joint conference, with a view of enlisting in Red Cross work.

Infantile Paralysis Situation.—Four new cases of infantile paralysis were reported in this city, July 20. Thus far one patient has died and the total number of cases reported to date aggregate eight, the largest number being reported on the date mentioned.

To Aid Blind Soldiers.—A state branch of the British, French and Belgium Permanent Blind Relief Fund has been formed here. The work of this society is to administer aid to those who have been rendered blind by war. The beneficiaries are to be natives of the countries mentioned. Mrs. Barclay Warburton, Philadelphia, is chairman of the association, and Mrs. Joseph E. Widener has been named as vice president.

SOUTH DAKOTA

Hospital Notes.—Plans for the new State Methodist Hospital at Mitchell are practically finished and the contract for construction will be let on September 1. A greater part of the funds needed for the building have already been

raised.——Dr. James L. Stewart, Spearfish, has begun the construction of a private tuberculosis sanatorium at Pringle.

New Board Officers and Members.—The governor has reappointed Dr. Ernest W. Feige, Huron, and Dr. William E. Daniels, Madison, members of the state board of health. At the midsummer session of the State Board of Health and Medical Examiners held in Deadwood July 17, the following officers were elected: president, Dr. Felix E. Ashcroft, Deadwood; vice president, Dr. Ernest W. Feige, Huron, and secretary, Dr. Park B. Jenkins, Waubay.

VIRGINIA

Funds for Infantile Paralysis Fight Granted.—The Board of Aldermen of Richmond, July 11, voted an appropriation of $1,998 asked for by Health Commissioner Ernest C. Levy for preparation against infantile paralysis.

New Hospital for Alexandria.—Ground was broken, July 14, for Alexandria's new hospital, which will be located on the north side of Duke Street, between Columbus and Washington streets. The land on which the hospital will be constructed was donated several months ago by Edward L. Daingerfield. A campaign to raise funds for the building was started in April, 1914, and the finance committee recently reported more than $40,000 in cash and pledges. It is expected that the building will be ready for occupancy early next spring.

Personal.—Dr. Sherwood Dix, Portsmouth, has been appointed full time health officer of Norfolk County. Dr. Dix will, in addition to his other work, be expected to make the school medical inspections which have heretofore been in charge of five physicians.——Dr. George Ben Johnston, Richmond, was appointed a member of the state board of health, July 1. Drs. John B. Fisher, Midlothian, and Lewis E. Harvie, Danville, have been reappointed members of the board.——Dr. Ennion G. Williams, Richmond, has been reappointed state health commissioner.——Dr. Ernest C. Levy has been reelected city health officer of Richmond.

CANADA

Hospital News.—A cottage hospital has been opened at Beverley, Alta. It is the first hospital in that province to be established and maintained by a municipality.——British Columbia recently adopted an amendment to the hospital act whereby if the hospital bill is not paid by the patient the municipality from whence the patient came must pay the charges, and then collect the amount from the patient.

Personal.—Maj. Rowland K. Kilborn, medical officer at the Royal Military College, Kingston, Ont., has resigned on account of ill health. He held the post for sixteen years.——Dr. J. Russell Stanley has been appointed medical officer of health at St. Mary's, Ont.——Dr. Henry E. Young, Victoria, B. C., for several years minister of education and provincial secretary for that province, has been appointed secretary of the health department of British Columbia and provincial officer of health.——Dr. George T. Wilson has been appointed medical officer of health and city bacteriologist for New Westminster, B. C., in succession to Dr. Alexander L. McQuarrie, who has gone overseas with the One Hundred and Twenty-First Battalion.——Dr. R. Eden Walker, New Westminster, B. C., has been appointed coroner of that city.——Dr. George S. Graham, pathologist and bacteriologist at the City Hospital, Boston, has been appointed chief of the Vancouver General Hospital Laboratories.——Lieut.-Col. Robert M. Simpson, Winnipeg, has been appointed assistant director of medical supplies at Camp Hughes.——Maj. Edward O. Steeves, Moncton, N. B., has been given command of the military hospital at Aldershot Camp, N. S.——Maj. Lewis E. W. Irving, Toronto, is in command of the Canadian division at the Woodcote Park Convalescent Hospital, near Epsom, England.——Capt. C. J. McMillan, Charlottetown, P. E. I., has been appointed second in command of the McGill Overseas Unit, which is in training in Montreal.——Capt. George G. Corbet, St. John, N. B., is registrar at the Canadian Convalescent Hospital at Bearwood Park, Wokingham, England.——Capt. Harold Chaplin, St. Johns, who was in the Newfoundland Naval Reserve, surgeon on the *Hampshire*, was lost when that vessel met with disaster off the Orkneys.——Among recently recorded wounded at the front are: Capt. John Aylmer Reid, Pinkerton, Ont.; Capt. William L. Shannon, Vancouver; Capt. J. J. Jamieson, and Lieut. Edward V. Sullivan, St. Stephen, N. B.——It is now officially announced that Capt. Walter R. W. Haight, Toronto, who was reported missing, was found bayoneted in his hospital tent along with his entire staff.

GENERAL

Successful Candidates for Navy Medical Corps.—At the examination recently held in various cities throughout the United States the following named medical men successfully passed the examination for appointment as assistant surgeon in the Medical Reserve Corps, with a view to subsequent examination for appointment in the Medical Corps of the Navy: James A. Halpin, M.D., Washington, D. C.; William D. Heaton, M.D., Wahoo, Neb.; Aubrey M. Larsen, M.D., Salt Lake City; Lincoln Humphreys, M.D., Argenta, Ark.; T. Edward Cox, M.D., Cleveland; Arthur W. Hoaglund, M.D., Minneapolis; Carroll H. Francis, M.D., Camden, N. J., and Harold L. Jensen, M.D., San Francisco.

Infantile Paralysis.—The total of cases in greater New York up to and including July 25 was 3,098, with 647 deaths, or 20.88 per cent. The grand total for the country on the same date was 5,501 cases, with 850 deaths, a mortality of 15.44 per cent. New Jersey and Connecticut have declared a quarantine against New York on account of infantile paralysis.——The Rockefeller Foundation, July 15, donated $50,000 to be expended under the direction of a committee headed by the mayor of New York, with Dr. Simon Flexner, New York, as vice chairman. Five additional surgeons of the Public Health Service have been ordered to New York. These are: Surg. William J. Pettus, Charleston, S. C.; Surg. Henry W. Wickes, Detroit; Surg. Dana E. Robinson, Ellis Island (on leave); P. A. Surg. R. A. Herring, Louisville, Ky., and Senior Surg. Parker C. Kalloch, Portland, Me.

Bequests and Donations.—The following bequests and donations have recently been announced:

Miss Hattie Newman, superintendent of the Loofbourow Hospital, Monroe, Wis., has been bequeathed the institution, free of all incumbrance, by the will of Dr. Nathan A. Loofbourow.

Washington Home for Incurables, $12,236.85; Children's Hospital, Washington City Orphan Asylum, Washington Home for Foundlings, Washington Aid Association for the Blind, and Ruppert Home, each $8,157.89, and National Homeopathic Hospital, George Washington University, Garfield Memorial Hospital, German Orphan Asylum, Central Dispensary and Emergency Hospital, and Eastern Dispensary, Washington, D. C., each $4,078.95, by a compromise between all the parties interested in the will of the late Theodore J. Meyer, Washington.

For a Negro Tuberculosis Ward in the Charity Hospital, New Orleans, a subscription of $3,500.

Long Island College Hospital, Brooklyn, $20,000; Brooklyn Hospital, $12,000; and Hospital of St. Giles the Cripple, Brooklyn, $10,000, by the will of Francis Ripley.

New York Academy of Medicine, the residuary estate amounting to $119,179, and scientific books valued at $142, by the will of Dr. Rudolph Witthaus, New York.

Mt. Sinai Hospital, Montefiore Home, and Hospital for Chronic Diseases, New York, and Zion House, Buffalo, each $1,000, by the will of Norbert Gunzberger.

Visiting Nurses Association of Chicago, an annuity of $2,400; Wesley Memorial Hospital, and United Charities of Chicago, each an annuity of $2,000, and Illinois Children's Home and Aid Society, an annuity of $1,000, by the will of Norman W. Harris, Chicago.

Death of Sir Victor Horsley.—Sir Victor Alexander Haden Horsley, the noted brain surgeon and specialist in cerebral localizations, died in Mesopotamia, July 16, from heat stroke. Dr. Horsley was born in Kensington in 1857, received his M.B. and B.S. with the gold medal in surgery in 1881, from University College, and the F.R.C.S. England, in 1883. He received the Fothergill Gold Medal of the Medical Society of London, and the Lannelongue International Gold Medal for Surgery in 1911. He was professor of pathology in University College, London, from 1893 to 1896, professor of clinical surgery until 1906, and thereafter professor emeritus of clinical surgery, surgeon to the National Hospital for Paralysis and Epilepsy, consulting surgeon to University College Hospital, professor-superintendent of the Brown Institution from 1884 to 1890, secretary to the Royal Commission in Hydrophobia, Fullerian professor at the Royal Institution, and president of the pathologic section of the British Medical Association in 1892-1893. He made many important contributions to the literature of epilepsy, brain anatomy and surgery, the thyroid and pituitary bodies and other subjects pertaining to surgical neurology. While Sir Victor Horsley was a great scientist, he also took deep interest in medico-social affairs. To him belongs the credit of the reorganization of the British Medical Association when it was changed into a direct, systematic, representative body. He early saw the advantages of this plan and urged them, notwithstanding the criticisms of the conservative members of the association, and eventually, after much tribulation and obloquy, carried his point, with the greatest possible resultant good to the organization. He was the first chairman of the representative body—comparable to the House of Delegates of the American Medical Association—and held the position for

some four or five years. He was aggressive in pushing what he believed was right, and consequently made enemies. Sir Victor was an ardent patriot, served with distinction in the Boer War, was a colonel of the Royal Army Medical Corps, and was on duty with the Tigris expedition in Mesopotamia when he was stricken by heat and died.

FOREIGN

Tuberculosis Fight in China.—Recent reports from missionaries in China show that the antituberculosis fight has extended into that country. James M. Yare, a missionary in Chengtu, Western China, writes that 4,500 calendars giving facts regarding tuberculosis were recently issued in a city-wide campaign in Chengtu, and in addition thousands of pamphlets were distributed to the citizens.

Havana to Have a Preventorium.—The authorities at Havana are arranging a preventorium for children threatened with tuberculosis, the first of the kind in the country. It is to be installed in a former hotel, the Palacio Campoamor, henceforth to be called the Palacio de la Infancia Desvalida, but is generally known as the Preventorio Marti. The *Prensa Medica* states that there were 3,192 deaths from tuberculosis in Cuba during 1915, of which 1,004 were in Havana, a proportion of 28.21 deaths per 10,000 inhabitants. The editorial adds that as medical science has eradicated yellow fever, plague and smallpox from the island, tuberculosis will be conquered in time in the same way, and to train the children in hygienic modes of life and prepare them for the combat with the tubercle bacillus is the first great advance in this line.

WAR NOTES

Split in American Ambulance.—It is reported from Paris, under date of July 16, that the field section of the American Ambulance, Neuilly, has separated from the organization and established itself with separate quarters, separate repair shops, parks, officers and funds unconnected with those of the Neuilly organization.

War Relief Appropriation Almost Expended.—Of the $3,000,000 appropriated by the War Relief Commission of the Rockefeller Foundation during the six months ended June 30, $2,159,985 has been expended and of this sum $1,290,292 was expended for Belgian relief. In Armenia and Syria $360,000 was spent, and in Serbia $148,894. For relief work in and about Constantinople, $35,000, while $55,000 was devoted to the surgical laboratory at Compiègne, France, which is under the direction of Dr. Alexis Carrel. An appropriation of $1,000,000 for relief work in Poland, Serbia, Montenegro and Albania is yet to be expended.

OUR TROOPS ON THE BORDER

Hospital Train for Army.—A hospital train of ten Pullman cars, designed by the Army Medical Department, has been ordered from the Pullman shops in Chicago. Five of the cars are to be equipped with regular hospital beds and will have large side doors for loading and unloading stretchers. Two of the cars will be of the regulation sleeper type equipped with extra fans, medicine cabinets and ice tanks; one will have a completely equipped operating room and another car will be furnished as a kitchen, sufficient to care for more than 200 men. In addition to the medical personnel, there will be a special corps of army nurses on the train, which will be painted maroon and will bear the insignia of the Army Medical Department.

Want Graduate Nurses for Service on Border.—The War Department intends to employ a large number of graduate nurses for service on the Mexican border. In accordance with its policy of taking the best of care of the National Guard on the border, the medical department of the army has established a series of base hospitals along the Mexican line, at which these nurses will be stationed. It is announced that 276 nurses are needed. Their pay will be $40 a month, with an increase of $10 for service outside of the United States, if they should be called on to go south of the border. The increase in nurses was authorized under the recently enacted army reorganization bill. Maj. Douglas McArthur, U. S. A., the War Department censor, has made public this statement on the subject:

"The Medical Department of the army has established a series of base hospitals along the Mexican border and consequently a large increase has been authorized for the Army Nurse Corps. Graduate nurses who desire to make application may obtain full information from the Superintendent, Army Nurse Corps, office of the Surgeon General, War Department, Washington, D. C."

LONDON LETTER

London, July 3, 1916.

The Combating of Venereal Disease

The first annual meeting of the National Council of Combating Venereal Diseases has been held under the presidency of Sir Thomas Barlow. In his address he dwelt on the salient features of the work of the council since its inception in November, 1914. From the beginning the council conceived that the most vital thing it had to tackle was the army, and a great deal of work had been done in that direction. A large number of lectures on these diseases and their effects had been given by physicians in London, Liverpool, Leeds and other important centers. In fact, over a thousand lectures had been in every case favorably and enthusiastically received. The council had had the cordial support of Sir Alfred Keogh, the director-general of the Army Medical Corps and his staff. The second subject to which the council had given its attention had been lectures on the social aspect of this wide and many sided question. In connection with this work it had received invaluable help from several women physicians and other women. There had also been interesting conferences as to the relation of these diseases to national health insurance, and to the desirability of conferring further powers on the civil as well as on the naval and military authorities for dealing with the diseases. The council gave its most enthusiastic support to the recommendations of the Royal Commission (given in a previous letter to The Journal).

The State and the Birth Rate

Mr. Long, president of the Local Government board, received a deputation representing the National Council of Public Morals, which presented the report of the commission which has inquired into the decline of the birth rate. Dean Inge, who presided over the later sitting of the commission, presented the report. He said that in considering what recommendations to make they had not forgotten that legislators were obliged to take human nature as it is, and that many reforms which might seem desirable to a moralist would be impracticable or even mischievous if attempts were made to enforce them by law. For this reason attention was called to the urgency of certain problems without suggesting how they ought to be dealt with. The only quite definite recommendation they made was that the sale of certain drugs widely used for the purpose of abortion should be made illegal. They supported the recommendations of the Royal Commission on Venereal Disease, and hoped that measures would be taken to diminish the ravages of these racial poisons. At the same time they were convinced that these diseases would probably remain unmanageable until public opinion condemned more effectively the vices through which they were mainly diffused. They also drew attention to the effect of housing difficulties in discouraging parenthood, and expressed the opinion that, in adjusting the burdens of taxation, special care was needed not to penalize parenthood among the classes which were capable of prudence and foresight. The large and socially valuable middle class especially needed consideration of this kind.

Dr. Mary Scharlieb said that consideration should be shown to middle class parents of small means permitting them to write off educational expenses, as they already wrote off their life insurance, from income tax returns, or that the state should devise some means whereby all children whose parents needed such relief should at the age of 14 receive a subvention sufficient to procure for them the means of continued education or of making a satisfactory start in life.

Principal Garvie said the reckless poor did not limit their families; the prudent, even if well-to-do, not to say rich, were more and more practicing restriction. The circumstances and characters of the one class must be so improved that they would not incur the responsibility of parenthood without the ability to meet its demands, and the difficulties and anxieties of the other class must be so relieved that they would be free to accept the blessing of parenthood. It would be folly to encourage an increase of numbers without taking steps to secure an improvement of quality in the population.

Mr. Walter Long, on behalf of the government, thanked the commission for the splendid work it had done. The commission had not hesitated to indicate what ought to be some, at any rate, of the directions in which the future policy of the government should be turned, but it was difficult for any government to take what might be described as direct action in connection with all the recommendations. With regard to taxation, any proposals in the matter of relief would

always receive his cordial support. He had long felt himself that the chancellor of the exchequer lost a very useful and proper source of income when he allowed bachelors to pay the same sort of taxation as the married men paid. Any proposal which tended to relieve those who spent a portion of their incomes in caring for their children would receive his hearty support. Another proposal concerned emigration. It was essential, and it had never been more essential than at the present moment, that our great race should extend and grow over the globe. We had had in this terrible war a most wonderful illustration of what the British race could do for the flag. In Canada there was room for a hundred million people; in Australia there was room for millions, and in South Africa there was magnificent territory from Cape Town almost to the Zambesi. We must rear the children who were to be the men and women to occupy these lands in the future. He heartily agreed with the suggestion made that there might be a central emigration board under which the work of migration might be coordinated and properly directed. With regard to venereal disease, they had instituted a new scheme as a result partly of the report which had been made on this question. They were endeavoring to make arrangements with hospitals throughout the country in order that provision might be made for these unfortunate subjects.

PARIS LETTER

PARIS, June 29, 1916.

The War

TREATMENT OF WOUNDS OF THE KNEE JOINT

In my previous letters I have spoken of the discussions which have taken place concerning the treatment of wounds of the knee joint. Some surgeons have been in favor of immediate arthrotomy, while others recommended abstention. Dr. Pierre Delbet, professor of clinical surgery at the Faculté de médecine de Paris, has just drawn the attention of the Société de chirurgie to the fact that in general, the reasons invoked in favor of abstention or intervention are insufficient. Delbet incubates the pus in a pipet and examines it after twenty-four hours; that is to say, he makes a pyoculture. By proceeding in this way one cuts short all the discussion as to early arthrotomy or systematic abstention. The indications would be very simple, according to Delbet, who advises: Suppose a recent articular joint wound of small dimensions and containing no foreign body, the articulation distended by an effusion. Puncture must be immediately practiced and a smear obtained for microscopic examination; this would take from three to five minutes. If germs are recognized in the smear, a simple arthrotomy must be immediately made by means of lateral vertical incisions. If no microbes are seen, one remains expectant, in the meantime immobilizing the articulation. In each case the pipet is incubated for twenty-four hours. If germs do not develop in the pus, no further action is necessary except possibly that one may suture the arthrotomy wound. If the result of the incubation is positive, and especially if it yields a number of streptococci, one should make a "wide arthrotomy" by a transverse incision through the patellar ligaments. Should there be a foreign body in the articulation, it is preferable to remove it at once. Should one suture, drain or leave fully open? One must again be guided by the degree of infection. If there are no germs visible on the smear, one may suture the wound but still make the pyoculture. If the result is negative, the suture will be left. If it is feebly positive, the articulation will be kept under close observation, and one must be ready, at any moment, to remove the sutures. If the positive result is moderate in quantity, one will at once reopen the wound. If it is abundantly positive, the simple arthrotomy must be converted into wide arthrotomy.

Delbet has had no opportunity of applying these methods to recent knee wounds, but he has used them in wounds of this sort dating from several days with the following results: Of seventeen cases, four proved aseptic and healed without arthrotomy; thirteen were septic. In three of these, only a simple arthrotomy was done, the pyoculture having given a feebly positive result. The clinical history of these three has been very simple. One has healed with ankylosis, the other with a knee capable of flexion to 90 degrees; the third is still under treatment. There remain ten cases in which the pyoculture was positive and yielded an abundance of dangerous germs; all these had lesions of the bones. In all of them treatment was commenced by a wide arthrotomy with immobilization, as rigorous as possible, and extension. In one case resection has been practiced because the bony ends were seriously damaged. This patient was cured. Five patients have been cured with ankylosis; four have required amputation. In one of the latter cases the limb would certainly have been saved had the only lesion been that of the knee; but there existed at the same time and on the same side an arthritis of the ankle joint with a crushing of the calcaneum. The latter alone had great weight in deciding for amputation. Delbet practiced amputation in the three other cases because the number of microbes continually increased and the general condition declined. All the patients recovered. Delbet thinks that pyoculture guiding him to complete abstention in a certain number of cases and permitting in the others a graduation of intervention, according to the degree of the infection and the resistance of the subjects, has been of essential service.

Professor Quénu was of the opinion that it is to the interest of clinical medicine to utilize to the utmost the teachings of the laboratory, and he congratulated Delbet on his efforts to increase the precision of the indications for operation, but on one condition, and that is that laboratory examinations should not be allowed to delay operations considered urgent. Now, the urgency of operative intervention in joint wounds, and especially in wounds of the knee, is as great as that of laparotomy in abdominal wounds. One can reproach Delbet's pyoculture system with the grave inconvenience of delaying the decision for twenty-four hours. Even supposing that one fourth of knee wounds are aseptic, Quénu would prefer, personally, to run the risks of one useless operation against three chances of a necessary operation, always supposing, of course, that the cleaning up of the region, aseptic precautions and the technical skill of the surgeon were irreproachable.

IODIN FUMIGATION IN THE TREATMENT OF WOUNDS

At the last meeting of the Réunion médico-chiurgicale de la XVI-e Région, Dr. L. Cheinisse of Paris drew attention to the excellent results that can be obtained by the treatment of certain wounds with iodin fumigations. The technic is very simple. A glass flask has a stopper with two tubes. One tube is adapted to a rubber blowing bulb; the other is intended for the escape of the iodized vapors. To obtain these, one places in the flask an appropriate quantity of iodin. The flask is heated by a spirit lamp, metal gauze being interposed. As soon as violet vapors of iodin commence to make their appearance, the current of air is forced through the flask by means of the bulb, and the vapors are directed so as to reach the remotest parts of the wound, and the operation is continued until the wound is completely dry and covered with a fine, bluish-gray powder with metallic reflections. Iodin fumigation must not be combined with wet dressings; the latter would take away all the efficacy of the fumigation. The wound, immediately after fumigation, must simply be covered with aseptic gauze and cotton. Iodin fumigations are particularly successful in highly infected, gangrenous wounds covered with adherent false membranes. They rapidly cause the wound to clean up. The putrid odor of the secretions disappears and the progress of the infective process is arrested. In a case of compound fracture of the scapula with fulminating gangrene in the infraspinous and supraspinous fossae, which had resisted washing with Labarraque's solution and interstitial injections of hydrogen peroxid, etc., Cheinisse saw, under the influence of iodin fumigations, that the wound cleaned up completely, and the general condition of the wounded man which had been so serious (high temperature, extremely feeble pulse) improved very rapidly.

Another indication for the use of iodin fumigations is atony of wounds whose condition remains stationary notwithstanding the most varied local applications. In one case a sergeant had undergone Chopart's amputation, and the stump, during two long months, had shown no sign of cicatrization, and grafts were about to be tried; but a few iodin fumigations sufficed to stimulate the atonic tissues and caused rapid cicatrization.

Diminution of Rabies

The health council of the department of the Seine has just received a report on the treatment of rabies in the department during the period 1910-1914. No case of hydrophobia in man has occurred during these five years. At the Institut Pasteur there were treated, in 1910, 119 persons who had been bitten; in 1911, 105; 1912, 111; 1913, 95; 1914, 92. No death occurred. The reporter concludes that rabies continues to decrease in the department and that this fortunate circumstance is due above all to the capture of wandering dogs. This measure must therefore be more and more developed and applied with perseverance as being the most efficacious.

Marriages

WILLIS HESS LEFEVRE, M.D., Ephrata, Pa., to Miss Marguerite Heiserman of Harrisburg, Pa., in West Philadelphia, July 7.

LEIGH FOWLER ROBINSON, M.D., Raleigh, N. C., to Miss Dorothy Beardsley Barrows of Hartford, Conn., July 12.

JOHN HOWARD BAKER, M.D., Indianola, Okla., to Miss Thelma A. Southworth of Walnut Ridge, Ark., May 25.

DAVID PAUL WHITMORE, M.D., Rock Springs, Wyo., to Miss Eva Belle Barber of Spring Valley, Minn., June 26.

EDWARD JOHN GOTTHELF, JR., M.D., Tucson, Ariz., to Miss Edna Alexandra Pelto of Los Angeles, July 15.

ALEXANDER LESLIE MARSHALL, M.D., Harrisburg, Pa., to Miss Margaret Blalock of Philadelphia, July 6.

DAVID C. TRACH, M.D., to Miss Emma M. Frantz, both of Kresgeville, Pa., at Cherryville, Pa., June 6.

WILLIAM ROBERT PERKINS, M.D., to Miss Ethel Mae Fausett, both of Washington, D. C., July 15.

WILLIAM A. SEIDLER, M.D., Jamaica, Iowa, to Miss Ethel N. Knapp of Colfax, Iowa, June 29.

CHARLES J. MCGEE, M.D., to Miss Rose Gertrude Fuller, both of Leavenworth, Kan., July 4.

RICHARD C. SEBERN, M.D., to Miss Edythe Kiner, both of Odebolt, Iowa, April 6.

JOSEPH S. GLICKMAN, M.D., to Miss Victoria Miller, both of New York, June 20.

Deaths

William Simon, M.D., Baltimore; aged 72; professor of chemistry in the College of Physicians and Surgeons, Baltimore, since 1880; eminent as a chemist; died at Eaglesmere, Pa., July 19. He was born in Eberstadt, Hesse, Germany, Feb. 20, 1844; received his education at Giessen, was given the degree of Ph.D. by the University of Giessen in 1869. He served as assistant to Prof. H. Will in Giessen, from 1869 to 1870, and after serving in the Franco-German War, came to the United States and opened a chemical laboratory at Baltimore in 1871. He was professor of chemistry in the Maryland College of Pharmacy from 1872 to 1902, and in the Baltimore College of Dental Surgery since 1888. In 1880 Professor Simon was given the honorary degree of M.D. by the College of Physicians and Surgeons, Baltimore, and in 1915, the University of Pennsylvania conferred on him the degree of Sc.D. In 1887 he was elected president of the Maryland Pharmaceutical Association; he was a fellow, member or honorary member of many chemical and pharmaceutical societies.

Francis M. Harrington, M.D., Providence, R. I.; College of Physicians and Surgeons, Boston, 1891; aged 47; a Fellow of the American Medical Association; formerly secretary of the Pawtucket Medical Association; a member of the Clinical Congress of Surgeons of North America; professor of surgery in his alma mater for many years; and for the last ten years professor of physiology and toxicology in the Rhode Island College of Pharmacy; surgeon-in-chief of the Pawtucket Hospital and consulting surgeon to the North End Hospital and Dispensary, Boston; died at his home, June 6.

Carnie Casander Thayer, M.D., Clifton Springs, N. Y.; Rush Medical College, 1878; aged 76; for twenty-one years a member of the medical staff of the Clifton Springs Sanitarium, and during a portion of that time director of the medical staff; for a few years a missionary in Turkey; a member of the United States Sanitary Commission during the Civil War for two years or more; died in the sanatorium, June 24, from gastric and duodenal ulcer.

Harris H. Baxter, M.D., Cleveland; Cleveland Homeopathic Medical College, 1868; aged 69; professor of principles of medicine, the organon and materia medica in the Cleveland-Pulte Medical College; a member of the Medical staff of the Cleveland Homeopathic Hospital; for fourteen years a member of the Ohio State Medical Board and once president of the board; died at his home, July 9, from heart disease.

Hilliard James Rowe, M.D., Willow Springs, Mo.; Missouri Medical College, St. Louis, 1886; aged 56; a Fellow of the American Medical Association; formerly president of the Southwest Missouri Medical Society; division surgeon for the Frisco System for twenty-five years and local registrar ever since the vital statistics law went into effect in Missouri; died at his home, June 17, from carcinoma of the rectum.

William Abraham Haskell, M.D., Alton, Ill.; Harvard Medical School, 1869; aged 71; a Fellow of the American Medical Association; one of the most prominent practitioners of western Illinois; a charter member of the Madison County Medical Society; a member of the Illinois State Board of Health and president of the board from 1887 to 1892; died at his home, July 13.

Rudolphus D. Jennings, M.D., Hot Springs, S. D.; Chicago Homeopathic Medical College, 1889; aged 62; a member of the South Dakota State Medical Association; formerly president of the state board of health and governor and chief surgeon of the Battle Mountain Sanitarium National Home for Disabled Volunteer Soldiers; died at his home, July 12, from diabetes.

Charles Edwin Selvage, M.D., Newark, N. J.; College of Physicians and Surgeons in the City of New York, 1906; aged 33; a Fellow of the American Medical Association and a well known orthopedic surgeon; a member of the staff of the Orthopedic Hospital, Manhattan; City Hospital, Newark, and Orange (N. J.) Hospital; died at his home, July 7, from typhoid fever.

Edward Francis Hodges, M.D., Indianapolis; Georgetown University, Washington, D. C., 1874; Harvard Medical School, 1877; aged 65; a Fellow of the American Medical Association and Royal Microscopical Society of London; professor emeritus of obstetrics in the Indiana University School of Medicine; died at his summer home in Cavendish, Vt., July 11.

Charles Wesley Overpeck, M.D., Rockville, Ind.; Medical College of Indiana, Indianapolis, 1904; aged 37; formerly a member of the Indiana State Medical Association; died at his home, July 10, from the effects of a gunshot wound of the right side, self-inflicted, it is believed, with suicidal intent, while temporarily deranged on account of family troubles.

Charles Frederick Braden, M.D., El Paso, Texas; Pulte Medical College, Cincinnati, 1890; aged 49; a Fellow of the American Medical Association; secretary of the local Red Cross Society, and secretary of the El Paso County Medical Society; died in a hospital in El Paso, July 6, from gastric ulcer.

Samuel Floyd Vaughan, M.D., Jonesville, Texas; Tulane University, New Orleans, 1869; aged 72; formerly a Fellow of the American Medical Association; a member of the State Medical Association of Texas, and once president of the Harrison County Medical Society; died at his home, July 7.

Robert Wesley Baker, M.D., Peoria, Ill.; Rush Medical College, 1879; aged 67; a Fellow of the American Medical Association; one of the most prominent practitioners of Peoria; for several years a member of the local board of education; died at his home, July 17, from heart disease.

James B. Drake, M.D., Norwich, N. Y.; College of Physicians and Surgeons, Baltimore, 1882; aged 63; a member of the Medical Society of the State of New York; visiting physician to the Norwich Hospital and Chenango Valley Home; died suddenly while driving his automobile, July 12.

Nathan Allen Loofbourow, M.D., Monroe, Wis.; Rush Medical College, 1873; aged 67; a Fellow of the American Medical Association; for many years a practitioner and druggist of Monroe, and head of the Loofbourow Hospital, Monroe; died in that institution, July 6.

William Alvars Franklin, M.D., Chicago; University of Michigan, Homeopathic Medical School, Ann Arbor, 1878; aged 67; formerly professor of pediatrics in Hering Medical College, Chicago; died at his home, July 6, from acute gastritis and pleurisy.

Charles Eugene Putnam, M.D., Jersey City, N. J.; New York Homeopathic Medical College, New York, 1883; aged 51; a member of the Medical Society of New Jersey and formerly a member of the Jersey City Board of Health; died at his home, July 13.

Francis Marion Spenogle, M.D., San Francisco; University of Wooster, Cleveland, 1879; Long Island College Hospital, Brooklyn, 1885; Bellevue Hospital Medical College, 1886; aged 64; died at Buena Vista (Calif.) Sanatorium, July 9, from diabetes.

Charles Wesley Shill, M.D., Lafayette, Ind.; Louisville (Ky.) Medical College, 1876; aged 65; for two terms coroner

of Tippecanoe County, Ind., and county health officer for several years; died at his home, July 8, from cerebral hemorrhage.

Thomas Marvin Johnson, M.D., Buffalo; University of Buffalo, N. Y., 1861; aged 88; for many years a practitioner and pharmacist of Buffalo; died at his home in Bath, N. Y., May 6, from arteriosclerosis complicating a fracture of the hip.

David William Edgar, M.D., Ames, Iowa; Rush Medical College, 1874; aged 69; formerly a member of the Iowa State Medical Association; died suddenly from heart disease, July 10, while driving across the college campus in his automobile.

John Y. Bennett, M.D., Leroy, Ill.; Physio-Medical College of Indiana, Indianapolis, 1896; Illinois Medical College, Chicago, 1898; aged 43; a Fellow of the American Medical Association; died at his home, about July 9, from pneumonia.

Thomas W. Reynolds, M.D., Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1904; aged 37; formerly a member of the South Carolina Medical Association; died at his home, about July 2.

James Fuller Crane, M.D., Richmond, Va.; Medical College of Virginia, Richmond, 1875; aged 66; a Fellow of the American Medical Association; for many years city physician of Richmond; died at his home, about July 11.

John Hermann, M.D., Sioux City, Iowa; Chicago Homeopathic Medical College, 1889; aged 55; lecturer in the German Lutheran Hospital Training School for Nurses, Sioux City; died at his home, about July 10.

George P. Eddy, M.D., Lewiston, N. Y.; University of Buffalo, N. Y., 1865; aged 75; for more than half a century a well known practitioner on the Niagara frontier; died suddenly at his home, July 4.

Elizabeth A. Neff, M.D., Halliday, N. D.; Chicago Physio-Medical College, 1896; aged 50; a Fellow of the American Medical Association; died suddenly on the street in Halliday, from heart disease, July 11.

Sovereign G. Popplewell, M.D., Milo, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 69; died at the home of his son in Sheldon, Mo., July 5, from carcinoma of the stomach.

Moses H. Bonner, M.D., Nashville, Tenn.; University of Nashville, Tenn., 1879; aged 59; who had been under treatment at Johns Hopkins Hospital for several weeks; died in Philadelphia, July 8.

Fred Knight Porter, M.D., Southwick, Mass.; Medico-Chirurgical College of Philadelphia, 1898; aged 42; formerly a member of the Massachusetts Medical Society; died at his home, April 12.

Isaiah Charles Barnhart, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1886; aged 68; died at the Huntington (L. I.) Hospital, July 12, after an operation for appendicitis.

Richard W. Sipe, M.D., Orange, Ind.; Indiana Medical College, Indianapolis, 1875; aged 76; a member of the Indiana State Medical Association; died at his home, June 30, from uremia.

John Selby Morris, M.D., Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1904; aged 38; a Fellow of the American Medical Association; died at his home, May 12.

Joseph G. Scott, Princeton, Mo. (license, Missouri, 1883); aged 79; a practitioner since 1867; died at the home of his son in Princeton, June 24, from cerebral hemorrhage.

Robert Hallenus McGehee, M.D., Rockcastle, Ala.; Vanderbilt University, Nashville, Tenn., 1887; aged 52; died suddenly, from heart disease, in Rockcastle, July 3.

Charles Sacramento Wood, M.D., New York City; College of Physicians and Surgeons in the City of New York, 1886; aged 52; died suddenly at his home, July 6.

Lafayette Martin, M.D., Batesville, Ind.; Eclectic Medical Institute, Cincinnati, 1887; aged 70; died at his home, April 14, from carcinoma of the liver.

Horatio C. Burritt, M.D., Toronto, Ont.; McGill University, Montreal, 1863; aged 75; died at his home in Toronto, April 21, from arteriosclerosis.

Edward Hale Dickie, M.D., Homer City, Pa.; University of Wooster, Cleveland, 1884; aged 58; also a druggist; died at his home, July 5.

Willis S. Bryant, M.D., Dale, Ind.; Miami Medical College, Cincinnati, 1874; aged 67; died, July 6, after an operation for gallstones.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

WINE OF CARDUI SUIT

(*Continued from page 307*)

May 24, 1916, Afternoon

TESTIMONY OF MR. SCOTT DUNNING

The Court met pursuant to adjournment. Mr. Dunning was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Dunning testified that he resides in Nashville, Tennessee. His mother lives in Slayden, and he lived in Slayden up to four months ago. He met Dr. Heizer in Slayden, Tennessee. At that time, the witness was working for a livery stable. The witness was with Dr. Heizer driving him for one day. They started from Slayden, and drove to Mr. G. T. Cooksie's store on Yellow Creek. This is a merchandise store. Dr. Heizer talked with Mr. Cooksie's wife. Dr. Heizer then went to the home of Dr. Dixon, a mile and a half away, then back to Cooksie's store. The witness stated that Dr. Heizer asked him if he knew of any one who drank Wine of Cardui around there. The witness stated that he mentioned some women but he did not know whether they drank it or not.

Dr. Heizer asked him concerning a disreputable place, and the witness told him that the women might drink it, but he did not know. Dr. Heizer stated that he would get some Cardui and come back to see him. The witness does not know if he bought any Cardui or anything else. He bought something and put it in the buggy. They then went to L. J. Browning's and Dr. Heizer entered, so that the witness did not know what he did. They then went to Pea Ridge, the disreputable house.

Dr. Heizer asked one of the women if she knew of any one who wished to make fifty cents and told her that he would give any one fifty cents to drink Wine of Cardui. The witness saw Dr. Heizer taking a picture of a Wine of Cardui sign in G. T. Cooksie's store. The women mentioned are women who live in a little old log cabin out in an old field.

The witness identified his signature to a document signed by J. J. Parrot. The witness stated that this is the second time he has been in Chicago. The first time he came was the latter part of March, at Dr. Heizer's request.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he has seen Mr. Richter lately in Nashville. Mr. Richter came there to see him. There was an understanding that the witness was to be paid his expenses and $5 a day for his time. The witness stated that he went home about the first of April. The witness knows Dr. Dixon and Dr. McCormick. He also knows J. J. Parrot and he has seen Dr. Keaton.

The witness stated that he told Dr. Heizer that he had seen F. T. Parrot drink Wine of Cardui. The witness stated that he told Dr. Heizer about the women of ill repute. He had known of their reputation for six or seven years. He told Dr. Heizer that it was possible that these women used Wine of Cardui.

The witness stated that Mr. J. J. Parrot is a drunkard and a farmer. He has known him for about six years. The witness drove Mr. Richter out to see Mr. Parrot at the time the affidavit was made. The witness does not remember the conversation that occurred between Mr. Richter and Parrot. It was about Wine of Cardui, but he does not remember what they said. The witness saw this statement at the Great Northern Hotel. Mr. Richter brought it over.

Mr. Parrot stated in the statement that he had taken two or three bottles of Wine of Cardui and that it did not hurt him, only left a bad taste in the mouth. The witness stated that he also signed a statement for Mr. Richter, but he does not remember what it was about. He does not remember

whether it contained what he told Mr. Richter. The statement was signed over a year ago. The witness does not remember that he told Mr. Richter to scratch out a portion of the statement before he would sign it.

REDIRECT EXAMINATION BY MR. FOWLER

Mr. Dunning stated that it was several months after he first saw Dr. Heizer that he saw Mr. Richter. He told Mr. Richter what had transpired between himself and Dr. Heizer.

DEPOSITIONS

Some depositions were read and then adjournment was taken until 10:30 a. m., May 25, 1916.

May 25, 1916, Morning

DEPOSITIONS

The Court met pursuant to adjournment and a number of depositions were read, after which the Court adjourned until 2 p. m. the same day.

May 25, 1916, Afternoon

TESTIMONY OF MR. WILLIAM DOWDLE

Mr. William D. Dowdle was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Dowdle testified that he resides in Millport, Ala., and has a cousin named Dowdle living there who does not drink. The cousin is a high church man and the witness never heard him accused of drinking nor did he ever see him drink. The witness was asked what kind of a man the other Dowdle is. Objection was made to the question. The Court ruled that the witness might testify only that the other Dowdle was not seen drinking by this witness and the witness has not heard of his drinking. The witness stated that the other Dowdle is his cousin. He has been intimately acquainted with him all his life and knows his habits.

Mr. Dowdle has known of Dr. Kay for six or seven years. The witness testified that he is a contractor and builder, also an insurance writer. He knows of Mr. Cox, who ran a store in Millport in 1912. He had not been in business in 1910, but went out of business in 1907 and resumed in 1912.

The witness stated that Dr. Kay had not seen him drink Wine of Cardui in Cox's store. He stated that the conversation which Dr. Kay said occurred between himself and the doctor did not occur. He stated that he had never drank Wine of Cardui, and that he did not know there was alcohol in it.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he would not have known anythink about Wine of Cardui from examining it except from reading the label. Even if he tasted it he could not have told that there was alcohol in it. He stated that Dr. Kay lives about 125 miles from where he does. The witness has lived in the neighborhood twenty-two years. He stated that Cox lived there from 1902 until 1907, moved away and came back in 1912. He knows this because Cox told him. He knows about the resumption of business from memory. Cox runs a drug store. During his absence the store was conducted by Drs. Doty, Collins and See. The witness does not know whether or not he kept Hostetter's Bitters. He knows that he did not keep Wine of Cardui because he can read the cartons. He never went around to see whether there was any Cardui there. He saw the shelves. He could not state any special thing which he saw on the shelves except drugs.

The witness stated that he drinks whisky, but he does not drink any tonics. He believes he drinks about a gallon a year. He orders it from Memphis. He does not buy bootleg whisky because it is too cheap. He did taste Peruna once ten or twelve years ago.

Mr. Dowdle testified that Mr. Denton first spoke to him about coming to Chicago. The witness believes that his expenses are being paid by the Chattanooga Medicine Co.; and thinks that the Court is paying his per diem. He has no arrangements as to what he is to receive from the Court. The Court said perhaps he had better advise the witness to get that idea out of his head.

The witness stated that when Mr. Denton came to him he asked him whether he (Mr. Dowdle) would come to Chicago if the company paid his expenses; he also asked some of the questions which were read to him a while ago. The witness also saw a Mr. Butler of the Chattanooga Medicine Co. Mr. Butler asked him if he was ready to go. Mr. Butler gave him $5 to pay his expenses to Maplesville. Mr. Glover bought the tickets at Maplesville. There were present Mr. Glover, Mr. Fitts, Mr. Dixon, Mrs. Adams, and a darky named Ben something. He met Mr. Richter at the depot in Chicago. Mr. Richter took charge of him.

Mr. Dowdle says that he has never tasted or drunk Wine of Cardui.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that his recollection is that Cox came back in November after an absence of five years.

TESTIMONY OF MR. FRED JAMES (COLORED)

Mr. Fred James was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. James testified that he resides in Maplesville, Ala. He has worked for Dr. Kay six months in all; two months each in 1914, '15 and '16. He was attending to Dr. Kay's horses, working in the office, etc. He stated that Dr. Kay had never seen him take a drink in his life; he never took a drink of Wine of Cardui during the time he worked for Dr. Kay.

Last January Dr. Kay asked him if he ever drank Wine of Cardui, and he told him that he purchased Wine of Cardui for his wife and drank one swallow back in 1910. He stated that Dr. Kay had no other business but practicing as a physician. He kept no drugs of his own. He kept Jamaica ginger. Objection was made and sustained to the latter question and answer.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he is 48 years old, has been married, and has lived in Maplesville eighteen years. He sometimes drinks gin and whisky. He has not drunk Hostetter's Bitters or Peruna or Manola. He orders whisky from Pensacola two quarts at a time.

Mr. James bought two bottles of Wine of Cardui. His wife may have purchased another. He was notified to come to Chicago by Dr. Glover by telegram. He supposed that he had to come to Chicago and that is the reason he came.

TESTIMONY OF MRS. SUSIE ADAMS

Mrs. Susie Adams was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. Adams testified that she lives 2½ miles from Maplesville. She has been married over three years and had one child two years ago last February. Dr. Kay and Dr. DuBois took care of her. She was unconscious from Friday night until Monday morning. Her mother told her she had convulsions.

The witness stated that she had not taken Wine of Cardui before the baby was born, and she did not tell Dr. Kay that she had.

Cross-examination was waived.

TESTIMONY OF MR. B. O. GLOVER

Mr. B. O. Glover was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Glover testified that he resides in Maplesville, Ala. He knows Dr. Kay and had known him since he came to Maplesville three years ago. His lot and that of Dr. Kay's adjoin.

The witness stated that the general reputation of Dr. Kay for truth and veracity in that vicinity is bad. He would not believe him on oath.

The witness was asked by the plaintiff's attorney if he knew the general reputation for truth and veracity of the colored man, Fred James, who had testified for the plaintiff a short time previously. The Court ruled that this evidence was not in order.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he has been postmaster, has run a saw mill commissary, worked in the store and rented his farm and worked on his farm. When he worked in the saw mill commissary he sold Wine of Cardui. This he did about three years ago. He has also been justice of the peace. He stated that Maplesville is a town of about 700 or 800 people.

The witness testified that Dr. Kay does not pay his debts and that he does not tell the truth. He knows that Dr. Kay will not pay his debts because he knows people that Dr. Kay owes money and will not pay them. He knows that execution was issued against Dr. Kay in two instances; collection was forced. Dr. Kay paid in those two instances, and he also paid the Court costs.

Mr. Glover had an argument with Dr. Kay about a road. Dr. Kay contended that it was a public road, and the witness stated it was not. The witness closed it up. He heard Dr. Kay's reputation generally discussed during the last two years. There are about 700 to 800 people in the town. The witness named two people whom he heard talk about Dr. Kay. He stated that the general reputation means that people do not like the man and that he is not popular. That is what the witness means by his general reputation for truth and veracity being bad.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated—after numerous objections to questions which were sustained—that by unpopular he means that the man does not fulfil his obligations properly and people do not like him.

TESTIMONY OF MR. R. E. FITTS

Mr. R. E. Fitts was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Fitts testified that he lives in Stanton, Ala. He farms, builds houses and is an officer of the county. He is justice of the peace and has been for about eight years. He has known Dr. Kay for a little less than three years. He knows Dr. Kay's reputation for truth and veracity in that community to be bad, and he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he had heard that Dr. Kay was elected mayor of Maplesville. He named four people whom he heard speak of Dr. Kay's reputation. Some of them are physicians who are competitors of Dr. Kay. Two are brothers. The witness cannot swear whether the conversations occurred before or since the suit.

The witness did not see Mr. Richter until he came to Chicago. Mr. Glover asked him to come to Chicago. He did not know what was wanted of him until he came here. He testified that he had not the slightest idea that they were wanting to prove by him that Dr. Kay's reputation for truth and veracity was not good. Mr. Fitts stated that he made a statement to a representative of the Chattanooga Medicine Co. about a criminal case against Dr. Kay some time ago. He gave the representative the docket of the case in his court as justice of the peace.

TESTIMONY OF B. O. GLOVER

Mr. B. O. Glover resumed the stand.

FURTHER DIRECT EXAMINATION BY MR. FOWLER

Mr. Glover stated that it is about a year since Dr. Kay was mayor of Maplesville. He did not know that Dr. Kay resigned.

DEPOSITIONS

The Court objected to the testimony as to why Dr. Kay resigned. Some depositions were then read.

May 26, 1916, Morning

The Court met pursuant to adjournment. Mr. Walker, attorney for the Chattanooga Medicine Co., asked that the jury might have the privilege of testing Wine of Cardui organoleptically themselves. The Court stated that he could see no objection after the witnesses had been disposed of.

TESTIMONY OF DR. BENJAMIN H. BREAKSTONE

DIRECT EXAMINATION BY MR. WALKER

Dr. Breakstone testified that he is a physician, a graduate of Rush Medical College in 1899. He passed the state board examination in 1898—while a junior in the medical college. He took postgraduate work in diseases of women and in surgery; taught chemistry in the Jenner Medical College in 1898; from 1898 to 1901 was assistant in diseases of women at the Central Free Dispensary, from 1899 to 1902 house physician at the Central Free Dispensary; assistant in surgery, attending surgeon and attending genito-urinary surgeon in the United Hebrew Dispensary for 13 years; assistant to Professor Brauer in nervous diseases at the Central Free Dispensary for four years. He also stated that he was attending genito-urinary surgeon at the Illinois Medical College Dispensary, and was assistant professor of gynecology at the Illinois Medical College. He was professor of surgery at the Jenner Medical College until 1906, when he became professor of operative surgery at the American College of Medicine and Surgery, which later became the Chicago College of Medicine and Surgery, and since 1908 he has been professor of surgery at the Bennet Medical College.

The witness also testified that he has been attending surgeon at the Cook County Hospital; consulting surgeon to the Mary Thompson Hospital for women and children, and chief surgeon of the Maimonides Hospital. He is now attending surgeon at the Jefferson Park Hospital and the Douglas Hospital, and is consulting surgeon to the Municipal Tuberculosis Sanitarium. He is a member of Chicago Medical, Illinois Medical Association, the Chicago Academy of Surgery, the Illinois Surgical Society, the American Medical Association, and the International Hospital Association. He stated that he was founder and first president of the West Side Physicians Club; he has been councilor of the Chicago Medical Society and Chairman of the Committee on Abuse of Medical Charities of the Chicago Medical Society. One year he was delegate to the Illinois State Medical Society. He has written 45 papers which have been published—one item twelve years ago in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. His practice is chiefly among foreign Americans.

The witness stated that he has specialized in surgery and diseases of women for the last eight or ten years exclusively. He has seen about three hundred patients a year suffering with female diseases, covering all ages, and has performed all kinds of operations which seemed reasonable to him. He has very frequently seen gonorrhea in women. In his experience 80 to 90 per cent. of the women suffer at the time of the establishment of menstruation. Medicines are given at this time and frequently he thinks they are useful.

Dr. Breakstone testified that he studied his surgical work privately under Nicholas Senn, to whom he was assistant for a while. He was also a pupil of Christian Fenger, James H. Ethridge, and J. Clarence Webster. He stated that he has seen all the leading gynecologists of the United States and Canada operate and some of the European ones. He stated that he is familiar with all the disturbances of menstruation. He considers that between 85 and 90 per cent. of disturbances of the female organs of generation are nonsurgical; about 10 per cent. of the cases that are now referred to him are nonsurgical. He testified that in normal healthy women no medicines are indicated, and that pregnancy is not a disease; it is a physiologic affair. If there are distressing symptoms the condition is not normal and he gives medicines. Tonics are indicated for a run down condition. Medicines are frequently indicated at the time of the menopause. Medicines are also indicated in practically all female conditions which are nonsurgical, and very frequently inflammatory conditions require nonsurgical treatment. He mentioned such conditions.

The witness stated that there are cases of sterility which might be treated by nonsurgical methods. He stated that he is familiar with the drug known as viburnum prunifolium and uses it in his practice, as he believes it has therapeutic value. He has never used carduus benedictus. He knows of it from reading; in his opinion it may be of benefit as a general and special tonic. He considers it possible that the medi-

cine be both a tonic and sedative. He distinguishes between a tonic and a stimulant.

Q.—Doctor, take a medicine known as Wine of Cardui. Have you ever used that in your practice? *A.*—I have never used any proprietary nor any ready-made formula of any kind.

Q.—At any time in your practice? *A.*—At any time.

He considered that the alcohol in the hypothetic medicine similar to that described to previous witnesses would have no effect at all. It would not have any effect in the dosage given in gonorrhea. He considers that gonorrhea is a self limited disease and cleanliness and keeping up the elimination of the body will cure it. He would not consider a tonic containing the amount of alcohol mentioned in the hypothetic medicine as detrimental.

Q.—What amount of alcohol, as alcohol, doctor, in your opinion, can be taken without injury, in a day? *A.*—Well, of course, it depends on the patient, and it depends on whether they are used to alcohol, but I would say from two to six ounces is absolutely harmless.

Q.—Would you make the answer to those that are not used to it, the minimum answer of two ounces? *A.*—Yes, sir, as the minimum.

Q.—Would you expect to have any deleterious results involved with the use of that amount of alcohol? *A.*—No, sir.

Q.—How many drops, doctor, are there in two ounces? *A.*—960 drops.

Q.—Take a young girl who is suffering—

The Witness:—I want to qualify that answer. I should say 960 minims. A drop is not quite the same as a minim.

Dr. Breakstone does not think that the hypothetic medicine given to a girl during puberty would heighten her passions, nor would it give her an alcoholic habit. He stated that a drop of water is approximately a minim, but a drop of alcohol is about half a minim. He testified that he did not think the taking of a medicine such as Wine of Cardui in the dosage named would be injurious to the organs of secretion of a woman at this time of pregnancy, nor does he think it would mask or conceal a cancer at the time of the menopause, nor does he think it would mask tuberculosis.

The witness stated that alcohol, beer, light wines, etc., are frequently taken by foreign women during pregnancy without bad effect on the mother or the fetus. There was described to the witness the experiment of Dr. J. Clarence Webster, and he stated that in his opinion it did not prove anything as to the efficacy of the medicine when taken by the mouth in the treatment of the sick. The fact that pituitrin acted on the uterus would not be evidence, in his opinion, that the previously mentioned medicine would not act on diseased women if taken through the mouth.

Mr. Walker: *Q.*—What would be the effect, if any, doctor, upon the tissues, of a local application of a medicine—if there be any—that would kill, itself, the gonococcus? *A.*—You mean that the medicine itself would kill gonococcus?

Q.—Yes? *A.*—Why, any medicine that will kill a microbe will destroy the tissue on which the microbe grows.

THE COURT:—Then tell us how it acts. Perhaps we have a misconception. When you make a local application in a case of gonorrhea, what do you do it for, and what is the chemical action or the physical action of the patient? *A.*—Well—

Q.—What happens to the microbe? *A.*—Well, in acute gonorrhea we do not use any local application at all. In the chronic gonorrhea we only use it to help the tissues—

Mr. Walker:—Louder.

The Witness:—(Continuing.)—to help the tissues throw off not particularly the microbe but its toxins. The microbe itself cannot be killed by any medicine unless it will also kill the tissues on which it grows.

Q.—What figure, doctor, does cleanliness cut in the cure, where there is a gonorrheal infection? *A.*—A great figure. In fact, years ago we used to use very strong antiseptics in surgery and the healing was not as rapid as it is today when we merely use aseptic precautions, not antiseptic.

Q.—What is the distinction? *A.*—An antiseptic is an agent which is calculated to kill the microbe or its effects. An aseptic is to render the tissues devoid of microbes that are already there, so that the tissues could be able to take care of the microbes which might be introduced during the operation or treatment.

Dr. Breakstone has read the Home Treatment Book for Women. He stated that gonorrhea is not brought on by sexual excess, the germ has to be there; it is not caused by discharges from the womb without the germ being present, but such discharges are the cause of vaginitis.

The witness stated every case of vaginitis is not due to gonorrhea. He testified that leukorrhea is a symptom, and that a tonic medicine would be indicated frequently even when there are malpositions of the uterus. He knows of malpositions that have been treated nonsurgically and cured.

The witness knows what is meant by synergistic action of drugs.

Q.—Well, what do you understand by the term? *A.*—Well, a synergistic action is an action that is helped by the presence of another drug. That is, there are some drugs that have to be given in quite large doses, yet, if we combine it with another drug, it takes a smaller dose of it.

Objection was made to questions regarding the witness' opinion of carduus benedictus, as he had never used it in his practice.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Q.—Doctor, in regard to synergistic action; what is it that determines synergistic action? *A.*—I don't know.

Q.—You don't know? *A.*—No.

Q.—All right. Then you would not know whether or not in the hypothetical medicine which Mr. Hough talked to you about—or Mr. Walker talked to you of—whether or not alcohol would aid the carduus benedictus or the viburnum prunifolium in a synergistic way, do you? *A.*—I don't believe that the alcohol would aid it in any way, except to keep it in solution and to preserve it.

Q.—Now, doctor, do you know the difference between adjuvant and synergistic action? *A.*—How is that?

Q.—Adjuvant and synergistic action, do you know the difference between the two? *A.*—Why, an adjuvant is supposed to be a drug that aids the action of another drug, and can be explained on physicochemical lines; whereas, synergistic action is one that we have not yet been able to explain on those lines.

Q.—Now, do you know whether there is any difference between the two actions, doctor? *A.*—How is that?

Q.—Do you know whether or not there is a difference between the actions, that is, the adjuvant action and the synergistic? *A.*—I presume there is.

Q.—You have no knowledge upon the subject yourself? *A.*—Well, I am not a specialist in that line.

Q.—What is aseptic, doctor? *A.*—Aseptic means the absence of the sepsis, the absence of the germ, or the toxins.

Q.—Well, aseptic then is a condition, is it not? *A.*—Yes, sir.

Q.—It is not a thing itself? *A.*—Well, we speak of an aseptic agent as an agent that will produce asepsis; and the antiseptic, as one that will kill the germs.

Q.—Now, what is the difference between them, doctor? *A.*—Between which?

Q.—Between the two terms that you have just used? *A.*—Well, an antiseptic agent is an agent that will kill the germs, whereas an aseptic agent is an agent that will render the field free from germs.

Q.—In what way will it render the field free from germs? *A.*—Well, mechanically.

Q.—How do you mean? Give us an illustration. *A.*—Well, by scrubbing and using various agents that might dissolve toxins, such as alcohol, and also—generally by giving tonics that will render the system, or render the blood in such shape that they may be able to throw off germs, or dead germs or toxins already there.

Q.—In using the word "aseptic" in connection with the gonorrhea, I understand you to say—or gonorrheal conditions—that the effect will be to destroy the tissues, if you use an antiseptic? *A.*—Yes, sir.

Q.—That is, if it were strong enough to kill the germ? *A.*—Yes, sir.

Q.—Now, how about iodin, doctor? You have used that many times, haven't you? *A.*—I have.

Q.—Well, do you think that would kill the gonococcus? *A.*—Iodin does not kill the gonococcus.

Q.—Have you ever had any experience in trying it? *A.*—Yes, sir.

Q.—How about nitrate of silver? In 10 per cent. solution? *A.*—Nitrate of silver does not kill the germ.

Q.—How about oxychlorid of copper, one in a thousand? *A.*—That does not kill it.

Q.—Did you ever try it? *A.*—I have never tried oxychlorid of copper.

Q.—Then whether it would kill it or not you don't know? *A.*—Well, from my readings of experiments that have been made, it will not kill it.

Q.—How about argyrol in 20 per cent. solution? *A.*—It will not kill it.

Q.—Have you tried it? *A.*—Yes, sir.

Q.—How many times? *A.*—Many times.

Q.—How about urotropin; did you try the use of that? *A.*—Urotropin will not kill the gonococcus.

Q.—Did you ever try it?

THE COURT:—See if we cannot put them together and save time. There is not anything in your experience that will kill the microbe itself without destroying the tissues?

The Witness:—No, sir, there is not.

Mr. T. J. Scofield:—The trouble with that is there are some things he has not used himself. He has mentioned one or two of them.

THE COURT:—He does not go outside of his experience. He says there is none that he knows of.

Mr. T. J. Scofield:—Well, I think I have a right to ask him about those—

THE COURT:—You may. I was trying to save time.

Mr. T. J. Scofield: *Q.*—In what way do you determine, doctor, whether or not the preparation which you use, or have used, to which reference has been made, kills the gonococcus or not? *A.*—Why, after using it, to make a smear and examine it under the microscope to see if the germ is still there.

Q.—Does that indicate that it has not killed any of the gonococci? *A.*—Well—practically speaking it does.

Q.—What is that? *A.*—Practically speaking, it does.

Q.—How is the gonococci located, and in what way is it held in the vagina, for instance? *A.*—It is usually within the mucous glands.

Q.—Yes. Now, is it in the folds of the vagina? *A.*—Well, the mucous membrane of the vagina is made up of folds.

Q.—Of folds? *A.*—Yes, sir.

Q.—And the gonococci work themselves into the folds, do they not? *A.*—Well, they even go deeper than the folds—they go right into the—into the uterus glands.

Q.—Can you tell the difference, doctor, between a gonococcus—when you look at it—one that is living and one that is dead? *A.*—Well, I can nearly—well, the gonococcus, I don't know whether it is living or dead, no.

Q.—Yes. Then how do you know that the agent has not killed the gonococcus? *A.*—Well, because they still keep on having gonococci, and the gonococcus is a short lived microbe, and if you find them a week or two after, there must be new ones, so that reproduction must have taken place, showing that the—there must have been remaining living gonococci.

Q.—Do you ever find any living gonococci in smears? *A.*—Well, I don't know whether they would be living or dead, but when we find them, we say that they are there.

Q.—Yes? *A.*—I am not a bacteriologist.

Q.—You say whenever you find them; you have found gonococcus, whether it is living or dead, you have found it? *A.*—Yes, sir.

Q.—And you cannot tell whether it is living or dead? *A.*—Well, you can in this way: A living—

Q.—I speak of your examination? *A.*—Yes. A living gonococcus retains its shape, and a dead one undergoes a disintegration very soon.

Q.—What did you mean a while ago, doctor, when you said you could not tell whether a gonococcus was living or dead, by such examination? *A.*—Well, I meant that I am not a bacteriologist.

Q.—Well, you mean you can't tell by looking at it? *A.*—Well, you can in the way I have already indicated. Perhaps a bacteriologist has some further means of telling; but that is the only way I could tell.

Q.—Now, may I inquire whether or not a living gonococcus will grow on a culture medium, any kind of a culture medium? *A.*—Whether it will?

Q.—Yes, sir. *A.*—I don't think they have been very successful in cultivating it on an artificial medium.

Q.—Well, have they found anything on which it can be propagated? *A.*—Well, I am not sure about it, but I believe it can be on the serum, on human serum.

Mr. Walker:—On what?

The Witness:—Serum.

Mr. Walker:—On human serum?

The Witness:—Yes.

Mr. T. J. Scofield: *Q.*—But you say you are not sure about that? *A.*—No, I am not sure about it.

Q.—And you are not a bacteriologist? *A.*—No, sir.

Dr. Breakstone testified that hygienic methods will cure gonorrhea and that is his method of treating it. He stated that alcohol in large quantities is harmful in gonorrhea, but he does not know of any liquid drug that does not contain alcohol. If he had a patient who was suffering with gonorrhea, he would tell the patient to stop drinking beer as the patient would certainly take more than two ounces of alcohol a day in beer.

He stated that beer contains approximately 10 per cent. alcohol. He does not know that it contains 4 per cent. alcohol. He stated that he is not an expert on beer. He tells all of his patients with gonorrhea to stop drinking beer, whisky, wine and gin, etc.

Mr. T. J. Scofield: *Q.*—Doctor, I understood you to say that gonorrhea was a self-limiting disease. What did you mean by that? *A.*—I meant that if left alone and not interfered with by local agents, and if the patient is otherwise in normal health, it will get well by merely general hygienic and dietetic care.

Q.—Do you recommend that as a proper way to treat gonorrhea? *A.*—I have treated three or four thousand patients that way.

Q.—And that is your recommendation for gonorrhea? *A.*—Absolutely.

Q.—Did you ever operate on a woman for salpingitis? *A.*—Yes, sir; many.

Q.—How many times? *A.*—Many times.

Q.—Well, approximately? *A.*—Well, I would say—

Q.—Well, I don't care, it does not matter—but in the percentage of cases—

Mr. Walker:—He does know. He will tell you.

Mr. T. J. Scofield:—All right.

The Witness:—What is the question?

Mr. T. J. Scofield:—I was going to ask you about the per cent. I will ask you how many cases—then I said it was not material, but Mr. Walker said you knew? *A.*—Well, quite a few, quite a number.

Q.—Quite a few. All right. How many of those cases were gonorrheal salpingitis? *A.*—Well, almost all cases of double salpingitis is due to gonorrhea.

Q.—They did not cure themselves, did they, doctor? *A.*—How is that?

Q.—I say those cases of gonorrhea did not cure themselves, did they? *A.*—No. A great many of these never knew they had gonorrhea; and a great many of those also were treated locally.

Dr. Breakstone then stated that the presence of gonorrhea in the urethra might produce urethritis, diseases of the bladder, or of the kidney. He described the method of examination of the presence of gonorrhea by a smear and stained specimen. He stated that in cases of gonorrheal urethritis, all that is necessary is to keep the urine bland, which he does by giving alkaline solutions, and lots of water; if it is in the womb, he tries to prevent the spread of the inflammation by keeping up the health of the patient.

Q.—Well, I know—I am not asking you that, doctor. My question was, when it is in the womb, how do you keep the womb clean, the inside of the womb? *A.*—How do you keep it clean?

Q.—I did not ask you how to treat it. I asked you how to keep it clean. You say cleanliness is the thing that makes it well? *A.*—Yes. But by cleanliness, we don't mean exactly local cleanliness. We mean keep the system clean, as well as locally. Now, if we try to inject anything up into the uterus, we will mechanically push the gonococcus further up, and then we will have salpingitis, and the history of almost all the salpingitis that have had treatment are that they had local treatment.

Q.—You know, doctor, I am not asking you how you don't do it; I am asking you how you do keep the uterus clean under those conditions? *A.*—Well, it will clean itself, by the menstrual blood, and—

Q.—Then, as far as the uterus is concerned, it does not need anything because it will clean itself from the gonococci? *A.*—It will clean itself—

Q.—Yes? *A.*—providing the health of the rest of the body is kept in the highest possible form.

Q.—Now, then, it has not been your experience, has it, doctor, that a man or woman who has strong health, in good normal condition, that the gonococcus germ grows and produces just as rapidly in her case, as it would in anybody else, a person who was anemic, or in poor health? *A.*—You mean, does it reproduce as quickly in a healthy person.

Q.—I mean just what I am saying. Doesn't it reproduce itself and spread and increase just as rapidly and as certainly in a strong, normal person as it does in anybody else? *A.*—Absolutely.

Q.—It does not? *A.*—No, sir.

Q.—That has been your experience? *A.*—Absolutely.

Q.—Then if a person is in perfect tone and in good condition, they don't need any sort of treatment for gonorrhea? *A.*—Well, very many people don't have any sort of treatment for gonorrhea.

Q.—I am not asking you what many people don't have. You are a physician here. I am asking you if a person's body is in good tone, and they happen to get gonorrhea, if they don't need any treatment at all? *A.*—Well, I would not say that. I would say that anyone afflicted with disease should go and see a doctor, for not only a treatment but advice.

Q.—Why should they go and see a doctor for treatment and advice? *A.*—Well, it is a contagious disease; they are going to spread it; and if they keep on eating all they want and drinking all they want, and get their system below par again, why, their resistance will be lowered. The idea of treatment is not only cure, but also prevention and—

Q.—Prevention of what? *A.*—Prevention of either the disease gaining a foothold, or its complications.

Q.—Well, but it is a self-limiting disease, and the person is up to normal tone, and it will not spread, will it, so far as the person is concerned? *A.*—Well, as long as measures are taken to keep it local, it will not spread. Measles is a self-limiting disease—

Q.—I understand that—

Mr. Walker:—Let him finish.

Mr. T. J. Scofield: *Q.*—Is there anything else you wanted to say? *A.*—Yes.

Q.—What was it? *A.*—Measles is a self-limiting disease, and many people get no treatment for measles at all, yet we have bronchopneumonia following measles in quite a few cases that could be prevented—

Q.—I am speaking of— *A.*—by treatment.

Q.—Yes. I am talking to you not about contagious diseases; I am talking to you about infectious diseases. *A.*—Every germ disease is contagious and infectious.

Q.—I am speaking of infectious diseases, doctor. *A.*—I have just answered that every disease caused by a germ is either contagious or infectious or both.

Q.—I did not ask you about the contagious end of it; we were talking about a condition of infection, gonorrheal infection. *A.*—Well, gonorrhea is not an infectious disease; it is a contagious one.

Q.—It spreads how? *A.*—By coming in contact with a germ, or the germ bearing agent?

Q.—But what is it that causes it to spread to the person who touches it or comes in contact with it, is it a germ? *A.*—A germ exactly.

Q.—It is a germ? *A.*—Yes, sir.

Q.—That is deposited there? *A.*—Certainly.

Q.—Is the disease then, as it is developed, an infectious condition? *A.*—It is called an infection, because that particular part is caused by a germ which infects, but it is a contagious disease, because it is contracted only by contact, and an infectious disease is one that we get through the air, water or food; whereas, a contagious disease is one that we get only coming in contact. We are exposed to contagious diseases all the time; but, if our health is good we are able to ward off that infection—that agent which is going to attack us. Not everyone who is exposed to gonorrhea gets gonorrhea. You have to be in—

the tissues have to be in a favorable condition for the gonococcus to be able to attack it.

Q.—Now, gonorrhea which affects the eye; do you treat that in the same way? *A.*—Well, the eye is easily cleaned, and is cleaned mechanically. We can cure it by boric acid. We cure it by silver nitrate, 1 per cent.

Q.—What do you use the silver nitrate for, doctor? *A.*—Merely as a prevention, to render the field aseptic, render it unfavorable for the gonococcus to be able to attack it, and remain there.

Q.—Boric acid solution will do that, won't it? *A.*—How?

Q.—Boric acid solution will do that, will it not? *A.*—Why, of course it will.

Q.—Now, then, doctor, you may describe one examination which you made—

THE COURT:—Just one minute. Is gonorrhea that attacks the eye self-limiting, as well as in the genito-urinary organs?

The Witness:—Well, that all depends. If it is caught early it is self-limiting.

Mr. Walker:—I cannot hear you doctor.

The Witness:—I say this, if it is not—if you don't catch it early before the—you mean, of course—

THE COURT:—Why do you have to catch it, if it limits itself?

The Witness:—You mean in infants?

THE COURT:—Yes; anywhere in the eye.

The Witness:—It will limit itself only if the health of the patient is as it should be. If, however, the health is run down, it will certainly work just like one army attacking another army; if the army attacking is weak, it will take a small army to capture and to eat the other army up. And in an infant the sudden change from an intra-uterine to an extra-uterine life makes them very susceptible subjects to all infections whether it be gonorrhea, or any of the acute exanthemas, or pneumonia, or bronchitis or any of those things.

Mr. T. J. Scofield: *Q.*—Then if I understand you aright, doctor, a perfectly healthy person whose body, tone and condition is absolutely right, can expose themselves to gonorrhea without danger? *A.*—I don't mean to say anything of the kind.

Q.—All right. Now, you have told us about the manner in which you determine whether or not gonorrhea is present—whether the condition be a condition of gonorrhea? *A.*—Yes, sir.

Q.—And that is by examination? *A.*—Yes, sir.

Q.—Now then, doctor, you recognize the fact that an examination is necessary? *A.*—Absolutely.

Q.—Well, is it necessary in all cases, doctor? *A.*—Yes, sir.

Q.—In treating women? *A.*—Yes, sir.

Dr. Breakstone stated that examination is necessary to determine the cause of the condition and to direct the treatment; that in the diseases of women the examination of the pelvis is necessary to determine the cause and the treatment; that the treatment can only be determined from the knowledge obtained through examination of what the condition is; that in many of these conditions, the patient can only tell her feelings, symptoms and pain and that these might be referable to many conditions.

Q.—Now then, doctor, you would not then think it was a very good thing for anybody to make a suggestion to a woman who was suffering from pelvic conditions that she ought to avoid any examination by a doctor? *A.*—Why, I would say that not only the sick people but all the well people ought to go to a doctor occasionally and be examined.

Q.—For examination? *A.*—Yes, sir.

Q.—That is a preventive measure in the one instance— *A.*—Yes, sir.

Q.—And in the other for the purpose of remedial— *A.*—Yes, sir.

Q.—And anyhow, you think that all women who are sick—or rather, the well women as well as those that are sick, should submit to such an examination? *A.*—They should, yes.

Q.—And you would not think it was a very proper thing for anybody to suggest to a woman under a heading like "Avoid a surgical examination," and "it will probably be painful, it will surely shock your modesty even if performed by a woman, if your female organs are out of order, and you suffer from menstrual irregularity, scanty or profuse discharge, womb trouble, or any form of female complaint," taking the hypothetical—or the solution that Mr. Walker called your attention—without any examination—as a medicine which is a specific tonic, curative in its action upon all female organs. You would not advise that, would you, doctor? *A.*—Not as a doctor—I would not.

Q.—Well, you would not as a man either, would you? *A.*—Well, I don't know; men do lots of things; they go to Christian Science churches and all that.

Q.—Yes. But, as a doctor, you would—as a man whose life's study has been to find out—that is, find the condition, to know how to remedy or treat it, you would think then it was your duty, under such circumstances, to examine to know the cause, wouldn't you? *A.*—As a physician, I would not attempt to treat any patient without an examination—personal examination.

The witness stated that some causes of prolapse are temporary and recover when the tone of the body is built up. In order to determine the type of prolapse an examination is necessary. He does not take the patient's word for anything.

Q.—Now, doctor, assume a case of a married woman who has had a number of children, and that she had following her confinements a prolapse of her womb to the extent that it was down near the external opening; also that it was turned wrong side up; and that she could feel it in that abnormal position; assume that this condition existed for approximately two years. Have you an opinion, doctor, as to whether taking six bottles of the medicine described to you by Mr. Walker, in doses of a tablespoonful three times a day, would turn the misplaced womb back the other way and restore it to its normal position? *A.*—Let me ask you, what do you mean by "wrong side up"?

Q.—Bottom side up, I suppose. *A.*—Do you mean an anteflexion?

Q.—A complete turning upside down, doctor. *A.*—Well, I cannot imagine of a womb being completely upside down and the cervix being near the vaginal opening. I could imagine a retroflexion that could be that way, but I could not imagine it the other way.

Q.—Well, can you answer that question as to whether or not that medicine— *A.*—Do you mean presuming those things to be true?

Q.—Yes, sir; yes, sir. *A.*—How can I presume anything to be true which is impossible?

Q.—I am not going to argue that—what did you say.

Mr. Walker:—He says he could not imagine—

The Witness:—I said I could not imagine anything to be true that is impossible.

Mr. T. J. Scofield: *Q.*—I am asking you whether or not if that condition exists. If this medicinal solution I have talked to you about would turn it over, put it back in its position? *A.*—Well, perhaps if such a thing could be, I presume anything else could be possible.

Q.—That is the way then in which you answer that question? *A.*—Yes, sir.

Q.—Well, if a woman stated—

THE COURT:—You mean the one is about as likely as the other?

The Witness:—Yes, sir.

Mr. T. J. Scofield: *Q.*—Now then, doctor, did you hear me say anything about the cervix of the womb being down near the external opening, in that question? *A.*—Yes—

Q.—You did? *A.*—I think I heard you say near the external opening.

Q.—Now, listen, doctor, and see whether or not there was anything of the kind said. *A.*—Perhaps I misunderstood.

A.—Assume the case of a married woman who has had a number of children, and that she had, following her confinements, a prolapse of her womb to the extent that it was down near the external opening; also that it was turned wrong side up; and that she could feel it in this abnormal position; assume this condition existed approximately for two years. Have you an opinion, doctor, as to whether or not taking this medicine, or medicinal solution, in doses—three doses a day, until six bottles of it had been taken, that it would turn the misplaced womb back the other way and replace it in its normal position? *A.*—I could not even imagine anything like that to happen. The other day you had some charts here, and I could explain it by them—

Q.—I am not asking you about the other day.

Mr. Walker:—He said you had some charts here and he could explain—

The Witness:—I cannot see how it could be wrong side up.

THE COURT:—Now eliminate that feature of it, and let us have the uterus—say it is nearly to the point of the external opening, have you an opinion as to whether this hypothetical medicine taken in the doses Mr. Scofield suggests would restore it to its normal condition?

The Witness:—I have an opinion.

Mr. T. J. Scofield: *Q.*—What is that opinion doctor? *A.*—That is if the ligaments were not ruptured, and if it was due to the woman being run down, that the medicine, in connection with exercise or local treatment, might cure it.

Q.—You would not consider, then, that was an operative case? *A.*—Well, from the hypothetical question, no.

Q.—In what way would the medicine cure it?

THE COURT:—You had in mind that the condition had existed for two years?

The Witness:—Yes, sir.

REDIRECT EXAMINATION BY MR. WALKER

Dr. Breakstone stated that in his experience a woman had told him that she felt as if her womb was upside down. The witness described gonorrheal urethritis. He stated that the United States Pharmacopeia and National Formulary contain drugs which are officially standardized. He mentioned as drugs which are used in genito-urinary diseases, and which contain as much alcohol as 48 drops to a dose, fluidextract of buchu, spirits of nitrous ether, and fluidextract of juniper. When these remedies are prescribed, he considers the alcohol negligible.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

Dr. Breakstone stated that fluidextract of buchu contains about 75 per cent. of alcohol, a dose has from one-half dram to two drams. He looked up the dose the morning he testified. He stated that he has prescribed it three times a day, in one dram doses. Such a dose would contain 45 drops of alcohol. He stated that this medicine is given either for a couple of days or for two or three weeks. He stated that medicine should be taken promiscuously.

Adjournment was taken until Wednesday, May 31, 1916, at 10:30 p. m.

May 31, 1916, Morning

The Court met pursuant to adjournment. The following depositions were read: Dr. I. M. Hyde, Nashville; Dr. B. F. Loring, Nashville, and Dr. Tom McMillan.

TESTIMONY OF MRS. GEORGE R. FRANCE

Mrs. George R. France was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. George R. France testified that she has been living in Maplesville, Ala., for over two years. She knows of no other France in the neighborhood. Maplesville is a saw mill town of about 500 people. Mrs. France stated that she has not moved to New York, but that last November she contemplated going to New York and it was generally known in the neighborhood. She did not tell Dr. Kay that she was going to New York. She gave birth to a child Nov. 14, 1914, and Dr. Kay attended her about two months previous to the birth of the child. At seven months she had trouble and was sick. Dr. Kay took care of her. When the child was born she had convulsions, beginning on Wednesday night and on Friday she was taken to the hospital in Selma, Ala. Dr. Kay accompanied her. Her baby was born after midnight on Friday night. Dr. Rogan also took care of her. The patient did not take any Cardui during that pregnancy that she knows of. She took some about two years before. She does not remember whether she told Dr. Kay that she had taken it. At that time she had an operation for tonsillitis.

Cross-examination was waived.

TESTIMONY OF MR. P. A. M'SWAIN

Mr. P. A. McSwain was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. McSwain testified that he lives in Andersonville, S. C. He knows Dr. Ashmore. He stated that his wife died five years ago. She was ill following the birth of a child. During that trouble Dr. Hughes of Laurence, S. C., attended her. Dr. Ashmore, of Anderson, S. C., was his family doctor for about eight years, and performed two operations on Mrs. McSwain.

The witness stated that he bought all the medicines for his wife. He attended her much of the time when she was sick. He stated that there never was a bottle of Wine of Cardui in his house, and that he does not know of Mrs. McSwain taking any Wine of Cardui.

Mr. T. J. Scofield moved that based on the record the testimony be stricken out on the ground that Dr. Ashmore testified not that the woman had taken Wine of Cardui, but that she told him she had taken it.

The Court ruled that it could stand for what it was worth.

The witness stated that he was present most of the time when Dr. Ashmore was talking to the witness' wife, and he did not hear her mention anything about Cardui.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that when he was not present he would not, of course, know what was said.

TESTIMONY OF MISS SALLIE BURDEN

Miss Sallie Burden was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Miss Sallie Burden testified that she resides in Anderson, S. C., where she has lived for about six years. She knows some people in the same town called "Burton."

The witness works in the cotton mills. She has never tasted Wine of Cardui. She stated that Dr. Ashmore treated her two years ago when she and her sister were rooming together. Her sister, so far as she knows, has never used any Wine of Cardui. She said that she never told Dr. Ashmore that she had taken any Wine of Cardui.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that she does not know what her sister may have told the doctor when she herself was not present.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that neither she nor her sister had had any menstrual troubles.

TESTIMONY OF MR. A. B. BURDEN

Mr. A. B. Burden was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Burden testified that he is the father of Misses Sallie and Jennie Burden. He works in the mill. He pays for most of the things purchased in his family. Dr. Ashmore treated the two girls for hookworm. The witness has not seen a bottle of Wine of Cardui in his house, and he does not know that the girls have ever taken any Wine of Cardui.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that so far as he knows neither one of his daughters have had amenorrhea, and so far as he knows they have not taken Wine of Cardui.

TESTIMONY OF MR. W. H. HANNA

Mr. W. H. Hanna was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Hanna testified that he lives in Anderson County, S. C., about 6½ miles from Anderson. He was born and raised in that county. He is pretty well acquainted with that county and does not know of any man named J. M. Hanna.

The witness has some boys. He read their names from a memorandum: J. T.; W. S.; E. M.; W. H., and O. D. Hanna. He had an uncle, J. T. Hanna, who has been dead for some three years. His father was named C. B. Hanna.

Mr. Hanna testified that Dr. Ashmore never attended his family, and so far as he knows has not attended his sons.

Objection was sustained to the question as to whether the witness had ever drunk Wine of Cardui.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he read the names of his sons from a memorandum, as he wanted to get them right. His memory is as good as it ever was.

Q.—Was it ever good? *A.*—Yes, sir, I think it was.

Q.—Of course, if you cannot remember the names of your sons, you would probably not know what other Hannas might be scattered around through that country, would you? *A.*—No, sir, I don't know of any.

TESTIMONY OF MR. S. L. PRINCE

Mr. S. L. Prince was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Prince testified that he is an attorney practicing in Anderson, S. C., since 1911. Mr. P. L. Barr was his brother-in-law. Mr. Barr was thirty-one years old when he died. During the summer of 1910 Mr. Barr was much in the company of the witness. Mr. Barr and the witness both belonged to the Rose Hill Club. In 1911 the witness took Mr. Barr to Dr. Carroll's sanitarium in Asheville.

Mr. Prince stated that he has never seen Mr. Barr drunk. The witness knows Dr. Ashmore. Mr. Barr's physicians he stated were Drs. Walter Nordin and S. W. Page. He does not know that Dr. Ashmore ever treated Mr. Barr.

Objection was made to questions asking if the witness knew of Mr. Barr's taking Wine of Cardui. The Court sustained the objection. The Court also sustained objection to questions asking whether the witness had ever seen Wine of Cardui in Mr. Barr's room.

Cross-examination was waived.

Further hearing of the case was adjourned until 2 o'clock the same day.

May 31, 1916, Afternoon

TESTIMONY OF MRS. MAGGIE FREEMAN

Mrs. Maggie Freeman was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. Maggie Freeman testified that she resides near Landersville, Ala. She is the mother of two children. Dr.

Fennell took care of her when the first child was born, at which time she had convulsions. The child was born alive and is still living. She had not taken Wine of Cardui during that pregnancy and had not told Dr. Fennell she had taken any. The second child was born nearly a year after the first one. During this time she took Wine of Cardui. She had an easy time with the second child. Dr. Jackson attended her.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that she took three bottles of Wine of Cardui during her second pregnancy. She began to take it about three months after she became pregnant. She took it almost through the entire pregnancy—a teaspoonful at a time. She would not take it regularly nor as it was directed to be taken.

TESTIMONY OF MR. CHARLIE FREEMAN

Mr. Charlie Freeman was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Freeman testified that he is the husband of Mrs. Maggie Freeman, the previous witness. At the time her first baby was born Mrs. Freeman had convulsions. Drs. Fennel and Jackson attended her. Mrs. Freeman had not taken any Wine of Cardui during this pregnancy. She was unconscious for three days and was unable to talk. Dr. Fennel took care of her after the baby was born. Mrs. Freeman took some Wine of Cardui during her last pregnancy. She had an easy time.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that Mrs. Freeman took three bottles of Wine of Cardui. She would take a teaspoonful at a time.

REDIRECT EXAMINATION BY MR. FOWLER

The witness testified that he bought any medicine used by Mrs. Freeman.

TESTIMONY OF MISS MOLLIE SIMMONS

Miss Mollie Simmons was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Miss Simmons testified that she resides in Landersville, Ala. Dr. Fennel treated her about two years ago for brain trouble. She had never taken any Wine of Cardui before he treated her, nor did she take any during the time he was treating her, nor did she tell him that she had ever taken any Wine of Cardui. Miss Simmons stated that she has never had any female trouble.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Q.—Miss Simmons, you say he treated you for brain trouble. What was the trouble? Do you know? *A.*—Sir?

Q.—What was the trouble for which Dr. Fennel treated you? *A.*—Just from the brains; that is all he ever said what was the—just in my head.

Q.—Were you down sick in bed? *A.*—Yes, sir.

Q.—Were you conscious or unconscious? *A.*—Yes, sir.

Q.—Which were you, conscious? *A.*—Yes, sir.

Q.—All the time? *A.*—Pretty well all the time.

Q.—You say pretty well all the time? *A.*—Yes, sir.

Q.—You are entirely clear, I suppose, as to what happened while you were sick? *A.*—Yes, sir.

Q.—You had conversations with Dr. Fennel, did you? *A.*—Yes, sir.

Q.—From time to time? *A.*—Yes, sir.

Q.—How many times was he there to see you, do you know? About? *A.*—He was there several times.

Q.—How are are you now, Miss Simmons? *A.*—I do not know exactly how old I am.

Q.—Well, about how old do you think you are? *A.*—Well, I don't know exactly. We got our ages all tore up, and I don't know exactly how old I am.

Miss Simmons stated that Mrs. Wilson and Mrs. Smaile of the Chattanooga Medicine Co. saw her about coming to Chicago and took statements from her. She told them that she had taken two bottles of Wine of Cardui. They told her that they would pay her.

The witness stated that she had taken Wine of Cardui about two years ago—about the time Dr. Fennel was there to treat her. She took it after Dr. Fennel came, not before. She testified that she recovered from the sickness for which Dr. Fennel treated her. She began taking Wine of Cardui after she was well and has used two bottles. She became acquainted with Wine of Cardui through the Birthday Almanac. She would take it a teaspoonful at a time three times a day. She stated that she had not had any female trouble.

Q.—What did you take Wine of Cardui for at that time, after Dr. Fennel had cured you, as you say, and you got up—what did you take Wine of Cardui for?

(No response).

Q.—Aren't you mistaken about that, Miss Simmons? Wasn't it before you got up—before Dr. Simmons was treating you for your brain trouble—or Dr. Fennel I mean—that you took that Wine of Cardui? *A.*—Yes, sir.

Q.—It was before he treated you? *A.*—Yes, sir.

Q.—And not afterwards? *A.*—No, sir.

REDIRECT EXAMINATION BY MR. FOWLER

Miss Simmons stated that she took three bottles of Wine of Cardui after Dr. Fennel took care of her. She was suffering with a pain in the head and with pains at the monthly periods. She has taken headache medicines since that time. She stated that Dr. Fennel treated her first and then she took the Wine of Cardui. She stated that she is an orphan girl.

Miss Simmons testified that she does not know exactly how old she is. She does not know whether she is around 40 years of age, and she cannot say whether she is older than 16.

TESTIMONY OF MISS REBECCA COOPER

Miss Rebecca Cooper was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Miss Cooper testified that she resides in Landersville, Ala. She has not been married. She has two children. Dr. Fennel attended her when the two children were born. At the time the first child was born she had convulsions. She has never taken Wine of Cardui. When the second child was born she had no convulsions.

Cross-examination was waived.

DEPOSITION

The following deposition was read: Dr. M. T. Ausbrook, Nashville, Tenn.

TESTIMONY OF MR. JAMES L. M'LEOD

Mr. James L. McLeod was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. James L. McLeod testified that he resides in St. John County, Fla., where he is in the timber business. He knows Dr. Worley. He was in the turpentine business with the same company in 1907-8. The camp was in Colee, Fla. He was connected with the commissary for about eight years. About half his time was devoted to commissary work. He did the buying for the commissary through an agent. Wine of Cardui was carried in the commissary. He stated that they would sell about four dozen bottles of Wine of Cardui a year. From 100 to 250 people worked in the camp. Between 40 and 50 were women. Most of the people were colored. He did not sell any Wine of Cardui, or see it sold to anybody that was drunk. He has never seen anyone about the camp drinking Wine of Cardui. The camp is now located about five miles north of Colee, and has been so located about five years.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that there were two people waiting on the customers in the commissary. He had entire charge of the commissary in 1911, and for two years following he had a helper or a clerk. Before he had entire charge he did not order the goods. In case of his absence the helper or clerk prepared the requisitions.

The witness cannot say definitely how much Wine of Cardui was ordered in 1906-10. He does not know how much was requisitioned in 1912. He would not say more than four dozen bottles, but he does not know how many. He does not know how many he ordered in 1913. The commissary does business with probably 20 or 25 families outside of the camp.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that it has been no trouble to get wine or whisky around the camp if anybody wanted it.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that there are no other concerns in that locality. He did not buy any wines or whisky nor did he sell it. He has seen it sold in the camp, some of it by employees. He would occasionally see a bottle sold. He knew where it was to be had and who was selling it. He saw the effects of it. There was considerable drunkenness in the camp among the colored people and this condition prevailed right along. He does not know what they got drunk on. For all he knows they may have drunk Wine of Cardui. He has seen them drink whisky, beer and wine. Most of the wine is domestic. It is not a dry country.

TESTIMONY OF MR. OGDEN J. OLMSTEAD

Mr. Ogden J. Olmstead was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Olmstead testified that he has been in Florida in the turpentine business for about twelve years. At the busiest time he has had 100 men in the camp, and about 40 women, mostly colored. He ran the commissary and did the principal ordering himself. He was in the camp four fifths of the time. He sold perhaps one or two dozen bottles a year. He has not seen anyone drink Wine of Cardui. He was asked if he had ever heard of anyone drinking Wine of Cardui. Objection was made and sustained.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he did the buying; a clerk did the selling. He would order Wine of Cardui one case at a time. He does not think he ever ordered more than one case. He has no distinct recollection of how much he sold in any one year.

REDIRECT EXAMINATION BY MR. FOWLER

Mr. Olmstead testified that Wine of Cardui was put up a dozen bottles in a box.

TESTIMONY OF MR. A. M. BENNETT

Mr. A. M. Bennett was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Bennett testified that he is a turpentine proprietor with a camp at Neoga, Fla. He has about 50 people at the camp, 12 or 15 of them women. He has never handled Wine of Cardui, to the best of his recollection, and has never seen any one drink it.

The witness knows Mr. A. V. Huff. He did not know him personally as he was a kind of a hard man to know. Mr. Huff was drunk all the time. So far as the witness knows Mr. Huff did not drink any Wine of Cardui in his camp. There were stores two miles away at Espanola.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he does not know anything about what occurred in the camp at Espanola. The camp was abandoned about two years ago.

REDIRECT EXAMINATION BY MR. FOWLER

The witness gave the name of the man who conducted the camp at Espanola. He did not know how much they carried.

Mr. Scofield asked that the whole testimony be stricken out, as it was not in rebuttal to the testimony of Dr. Worley. The Court ruled that the man's testimony that he had not sold any Wine of Cardui in his camp might stand.

TESTIMONY OF MR. ED. W. BURNSED

Mr. Ed. W. Burnsed was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Burnsed testified that he has been living in Espanola, Fla., for fifteen years. He conducts a general store. There was formerly a camp at Espanola conducted by a man named Mattox, who left there about three years ago. His people traded with Bohanan and Sons, who went out of business. The witness stated that he does not sell Wine of Cardui and never has.

Mr. Burnsed stated that Mr. A. V. Huff formerly ran the camp before Mr. Mattox. There was formerly a camp about a mile from Espanola, in which there was a store conducted by Mr. Hoover. The witness does not know that Mr. Hoover carried any Wine of Cardui. He did not see any sold for drinking purposes. He does not know that anyone drank Wine of Cardui.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he knows Dr. Worley and Mr. Sabbity. They lived in St. Augustine, about 40 miles from Espanola. The witness knows every man who has lived in that neighborhood for the last 15 years. The witness has never sold any Wine of Cardui. He does not know whether any one carried Wine of Cardui prior to two years ago.

TESTIMONY OF MR. C. C. BROOKS

Mr. C. C. Brooks was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. C. C. Brooks testified that he resides in Covington, Ga. He knows Dr. Everett, who lives about five miles from Covington. He knew Will McWhorter, who died in October, 1915. He knew John Neely, who died Nov. 27, 1913. He knew Henry Harper, who died September, 1912.

Cross-examination was waived.

DEPOSITIONS

Two depositions were read and court adjourned until the following day, Thursday, June 1, 1916, at 10:30 o'clock a. m.

June 1, 1916, Morning

TESTIMONY OF MR. EVERETT R. OGILVIE

The Court met pursuant to adjournment. Mr. Everett R. Ogilvie was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Everett R. Ogilvie testified that he resides in Jacksonville, Fla. He was formerly engaged in the turpentine business at Durbin Station, in St. Johns County. He was also postmaster. He was in this business from 1905 until 1913, and employed from 65 to 100 men in his camp, and there were usually from 15 to 25 women. There was a commissary which he conducted with the assistance of a clerk. He did not keep posted as to the stock of goods on hand. Wine of Cardui was kept in stock. He bought it direct from the Chattanooga Medicine Co. During the time he ran the business he thinks he purchased about four dozen bottles. This purchase was made about three years before he went out of business. Practically all of the stock was on hand at the time he went out of business. He does not remember that he sold a bottle, nor does he know of anyone drinking Wine of Cardui in the camp. He was also connected with other camps, and so far as he knows Wine of Cardui was not drunk as a beverage in those camps.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

Mr. Ogilvie stated that most of the help in his camp were colored. The clerk waited on the customers most of the time. He is not positive how many orders he gave for Wine of Cardui. If he was out of any particular line he would purchase more.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that he did not run out of Wine of Cardui.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that some of the time the clerk would order goods. He knew when it was necessary to order goods from what the clerk told him.

TESTIMONY OF MR. TOM HART

Mr. Tom Hart was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Tom Hart testified that he lives below Dothan, Ala. He knows of Frank Sellers, Joe Granger, and Jim Sellers, who ran a store at Cottonwood. He stated that he never

purchased any Wine of Cardui in Seller's store, nor did he drink any there, nor did he see anybody else drink any Wine of Cardui there. He testified that he has never drunk Wine of Cardui. He had a brother named Pat Hart who died last February, and does not think that Pat Hart ever drank Wine of Cardui.

The witness stated that he was never arrested for being drunk on Wine of Cardui. He does not know of Pat Hart or anyone else being arrested because they were drunk on Wine of Cardui.

Mr. Scofield moved to strike out the last evidence as there is no testimony that the witness was arrested. The Court stated that this could be verified from the record.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he sometimes drinks, but that he never was drunk in his life. He drinks whisky and beer. He can order two quarts of whisky at a time from Florida. He never bought any in the drug stores or of the bootleggers. Mr. Tom Ashby saw him about coming to Chicago. Mr. Ashby told him of the testimony that had been given in the trial. After he came to Chicago he did not talk with anyone about what he would say at the trial.

Mr. Hart had one drink on the morning of testifying—namely, "gin." He did not mention gin previously as he considers it is whisky.

TESTIMONY OF MR. GENE HUNT

Mr. Gene Hunt was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Gene Hunt testified that he lives in Dothan, Ala. He knew J. H. Sellers who ran the store at Cottonwood, but did not know Frank Sellers. He stated that he has never drank Wine of Cardui, and that he has never bought any of it at Seller's store. He testified that he never tasted Wine of Cardui, and that he never saw anyone drinking it as a beverage. He never was in Sellers' store at a time when Tom and Pat Hart were there.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he qnit drinking about ten years ago. He knows Tom and Pat Hart, but is not intimate with them. He does not pretend to know what Tom or Pat Hart did. He simply speaks for himself.

TESTIMONY OF MR WILLIAM RUCKER

Mr. William Rucker was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Rucker testified that he lives about three miles from Cottonwood. He has known Mr. J. H. Sellers and Mr. Frank Sellers for about ten years. Frank Sellers never saw him drink Wine of Cardui. He stated that he never did drink Wine of Cardui. He tasted the first bottle which he bought for his wife back in 1899. His wife had irregular periods. He bought her one bottle and after she took it he took $5 and bought her six bottles. She took all of that—a tablespoonful three times a day. She had taken doctor's medicine up to that time and it did not do her any good. Since that time she goes to the field and plows the same as he does.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he is not a drinking man. When he was a boy he used to take a drink every morning. He stated that he did not take a drink of the Wine of Cardui; he put his tongue to the stopper. Since 1899 he has had no experience with Wine of Cardui, except as he gave it to his wife.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that he tasted the Wine of Cardui about 15 years ago.

TESTIMONY OF MR. JOE HANLEY

Mr. Joe Hanley was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Joe Hanley testified that he lives within nine miles of Athens, Texas. He has known Dr. J. K. Webster about 13 years. Mr. Hanley is a farmer. He stated that he never drank Wine of Cardui behind the drug store with two other persons. He once tasted Wine of Cardui in Athens in April, 1916. Tom Russel was with him on that day. Tom Russel works for Dr. Webster.

Q.—Did you know what it was you tasted when you tasted it at that time? *A.*—No, sir, I did not; he said he had something good to drink, and I took a little swallow of it, and I told him if they called that good, I did not know what he called bad.

Q.—When did you find out what you had drank? *A.*—I went back to the druggist and asked him—he asked me had I bought a bottle. He left the wrapper in this here drug store where we have been talking about, and he asked me had I bought any bottle that day, and I told him no sir, I had not, and he says that somebody had, and I says I know who got it, Tom Russel done it, and he says "Do you know it?" and I says, "I don't know what it is, but I will go back"—

Mr. T. J. Scofield:—That is objected to. What has this conversation got to do with it?

Mr. Fowler: Q.—Had you ever tasted it, put your tongue to it before that day? *A.*—No, sir.

Q.—Have you ever since that time? *A.*—No, sir, I have not.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he has been drinking off and on for about twenty-five years. Athens is a dry country; it has been dry ten or twelve years. He drinks mostly whisky, he also has drunk a few bottles of Hostetter's Bitters and a few bottles of Manola. He has never tried Peruna. He may have drunk something behind the store, it was either whisky or Hostetter's Bitters. He has never drunk Wine of Cardui. He gets his bitters from the druggist, who carries a pretty good line of tonics.

The witness testified that Mr. Reynolds of Dallas, Texas, arranged for him to come to Chicago. Mr. Reynolds is the representative of the Chattanooga Medicine Co. for the state of Texas. Mr. Reynolds came to see him on April 15, took his evidence and made arrangements for him to come in case he should have to. The witness told Mr. Reynolds that he would come for $3 a day, and payment of his expenses.

The next man who came to see him was Mr. George, of Athens, who works in a drug store. The witness does not know whether or not they sell Wine of Cardui. Mr. George bought his ticket and Mr. Reynolds came with him. Since he came to Chicago he has talked with Mr. Reynolds and Mr. Richter about his evidence. He has not talked with any of the attorneys. No one told him what they wanted him to testify about. They did not know what he was going to say until they heard him testify on the witness stand. He told them that he intended to tell the truth, and it would make no difference who it would hurt. He also told them that he was going to swear that he never got drunk on Wine of Cardui. He has been drunk at times.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that he gave Mr. Reynolds a written statement as to what he would testify when Mr. Reynolds first came to see him. The gentleman to whom he referred was Mr. Wheatley.

TESTIMONY OF MR. MARCUS G. NOELL

Mr. Marcus G. Noell was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Noell testified that he resides in Waco, Texas. He knows Dr. G. M. Goddard. Mr. Noell is vice president of the McKnight Sundries Co., Waco, Texas. He has been engaged in this business about six years. He lived in Boyce for nearly two years. Dr. Goddard was practicing medicine in Boyce, and his office was next to the drug store owned by the witness. Boyce is a town of about 100 population. The witness furnished Dr. Goddard with his office and the drugs that he used in his medicine case. He considers Dr. Goddard's general reputation for truth and veracity as bad and he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he is twenty-nine years old. He lived in Boyce in 1908 and 1909. He has not been in Boyce

for seven years. All he knows about Boyce he learned in the twenty months when he had a drug store there. He has heard Cary Wilson speak of the reputation of Dr. Goddard, in Boyce. Mr. Wilson is the only one whom he could remember having heard speak about Dr. Goddard. When he conducted the drug store he sold Wine of Cardui. He does not sell Wine of Cardui now. Before he lived in Boyce he worked for his brother in a drug store, in which Wine of Cardui was sold.

Mr. Noel is acquainted with Mr. Reynolds, state agent for the Chattanooga Medicine Co. in Texas. Mr. Jackson of the Chattanooga Medicine Co. arranged for the witness to come to Chicago. Mr. Jackson told the witness that he wanted him to impeach Dr. Goddard. The witness could not say what Cary Wilson said.

TESTIMONY OF MR. J. W. PEARSON

Mr. J. W. Pearson was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. J. W. Pearson testified that he lives at Leonard, Texas. He is Dean of the Faculty of the Cumberland College, which is connected with the Cumberland Presbyterian Church. He was ordained as a minister in 1882. He knew Dr. G. M. Goddard, in Boyce. He was in Boyce in 1905, 1906 and part of 1907, and engaged in the drug business. The witness stated that Dr. Goddard's office was inside of a building which the witness had rented. He considers Dr. Goddard's reputation for truth and veracity as bad and he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he has spent sixteen years of his life in the drug business. He sold Wine of Cardui, Lydia Pinkham's Compound, but not Manola or Hostetter's Bitters. He was a minister while he was selling Wine of Cardui. He did not charge Dr. Goddard any rent for the office in his building. He put up the prescriptions for Dr. Goddard. The witness has been dean of the college since 1910. The college has from 75 to 100 pupils a year. There are four teachers on the faculty, including himself.

The witness testified that he had no trouble with Dr. Goddard, although they conflicted a little sometimes in their views about things in the drug store. The witness has heard Lum Wilson, Cary Wilson, George Ledwell, J. M. Burford, John Borders and Grandfather Borders, Dr. Graham, Bert Smith, Elmer Smith, and Mr. Dahnke talk about Dr. Goddard. They stated that Dr. Goddard was a regular windy, and a braggart, and they would not rely on what he said. One of them said he was a rascal. The witness says he does not take stock in those things. He trys to say good about every man in the world if he can. Cary Wilson said that Dr. Goddard was windy, and Lum Wilson said Dr. Goddard was a braggart. He does not remember who said Dr. Goddard was a rascal because he does not want to remember that. He didn't want to believe it and tried to forget it.

REDIRECT EXAMINATION BY MR. FOWLER

It was brought out that the reason the witness considered Dr. Goddard a rascal was that the witness furnished the medicine for Dr. Goddard's emergency cases, and that the doctor took too much medicine for his emergency cases. The witness considered that Dr. Goddard did not give him enough prescriptions to pay for the medicines which he used in the emergency cases.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that it is the custom among druggists to give physicians free the medicines which the doctors carry in their little hand case for emergency, and the druggist takes his chance of being repaid by the prescriptions which come in.

TESTIMONY OF MR. C. A. GARDINER

Mr. C. A. Gardiner was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. C. A. Gardiner testified that he is in the real estate and loan business in Dallas, Texas. Dr. Goddard had a sanatorium in Oak Cliff for the cure of drug habits. He considers the reputation of Dr. Goddard for truth and veracity as bad, and he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness has lived in Dallas twenty-five years. He was formerly on the road selling harness. For about nine years he has been in the loan and real estate business. The sanatorium was about two blocks from the witness' house. The witness was interested in real estate in the neighborhood of the sanatorium. He was not intimate with Dr. Goddard, but knew him when he saw him. He has never had business relations with Dr. Goddard. Oak Cliff is a town of 20,000 people. All he knows about the Goddards is what he has heard people say of them. He heard it said that they were a bunch of crooks. Dr. Ed. Means, George Fryson and Mr. Britton, manager of the Fulton Market in Dallas, are the ones he heard say this.

The witness is a friend of Mr. Reynolds, agent for the Chattanooga Medicine Co. in the state of Texas. Mr. Reynolds came to see him and took a statement from him.

TESTIMONY OF MR. BEN W. SMITH

Mr. Ben W. Smith was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Ben W. Smith testified that he is in the manufacturing business, a manufacturing pharmacist, residing at Oak Cliff. He has been in the drug business for nineteen years. He considers the reputation of Dr. Goddard for truth and veracity as bad and would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he ran a drug store in Sulphur Springs. He has sold Wine of Cardui. He manufactures a patent medicine called "Eucaline," also Hall's Chill Tonic and sarsaparilla, a tonic and a liniment. Hall's Chill Tonic has no alcohol in it. Eucaline has two forms: one with 1 per cent. and another with 3 per cent. The tonic sarsaparilla has 10 per cent. of alcohol. Oak Cliff is in a dry territory.

The witness stated that he was reasonably acquainted with Dr. G. M. Goddard. Mr. Reynolds of the Chattanooga Medicine Co. lives six or seven blocks from Mr. Smith, and the witness is well acquainted with him. The witness signed a statement for Mr. Reynolds. Mr. Reynolds did not agree to recompense the witness. He did agree to pay his expenses.

Mr. Smith had an uncle who stated that Dr. Goddard's reputation for truth and veracity was bad. His uncle's name was E. G. Patten, who died six or eight months ago. He was no relation to the Pattens of the Chattanooga Medicine Company.

The witness has had business relations with the Pattens for fifteen or sixteen years. He stated that he also heard W. T. Dansby talk about Dr. G. M. Goddard. Mr. Dansby has moved to South Texas, but the witness does not know just where.

Adjournment was taken until 2 o'clock the same day, June 1, 1916.

June 1, 1916, Afternoon

TESTIMONY OF MR. W. H. CARSON

Court met pursuant to adjournment. Mr. W. H. Carson was called as witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Carson testified that he is a traveling salesman for the Columbia Conserve Co., of Indianapolis, Ind. He has lived in Dallas, Texas, for about twenty-eight years. He considers the general reputation of Dr. G. M. Goddard for truth and veracity as bad, and he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness knew Dr. G. M. Goddard personally at the time when he (Mr. Carson) was a grocery clerk. The witness was well acquainted with Dr. Goddard's brother. He stated that on April 3 he received a telegram at Decatur, Ill., asking him to meet Mr. Richter of the Chattanooga Medicine Co. Mr. Richter asked him if he would come to Chicago to testify about Dr. Goddard. He told Mr. Richter he would not. Later Mr. Richter saw him in the Fort Dearborn Hotel and he asked him to come and testify.

TESTIMONY OF DR. CLAUDE L. MURPHREE

Dr. Claude L. Murphree was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Dr. Claude L. Murphree testified that he lives in Gadsden, Ala. He is a graduate of the Birmingham Medical College and is a member of his county and state society. He takes THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. He knows Dr. H. L. Appleton and considers his reputation for truth and veracity as bad, and would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he is a reasonably good friend of Dr. Appleton. An attorney named W. J. Boycan asked him to come to Chicago to testify. Dr. Boozer and Dr. Johnson also came. Mr. Richter of the Chattanooga Medicine Co. also saw him about coming to Chicago. He stated that he came up for expenses and per diem. The per diem was $40 per day and expenses for every day that he is away from home. He stated that Dr. Appleton has called him in consultation. He named the following persons who said they would not believe Dr. Appleton on oath: Carl Whorton, E. T. Schueler, Dallas Payne and Charley Bell. All of them live in Gadsden, which is a town of about 12,000 people. Most of the talk followed some litigation in which the people mentioned were interested.

TESTIMONY OF DR. W. B. JOHNSON

Dr. W. B. Johnson was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Dr. Johnson testified that he lives in Gadsden, Ala. He is a member of his county and state society. He considers Dr. Appleton's general reputation for truth and veracity as bad, and would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he began to practice medicine at Munford, Ala. From there he went to Ashford, Ala., and from there he went to New York City, where he took a postgraduate course for one year, and then returned to Gadsden. He has never had any business relations or consultations with Dr. Appleton. He heard Mr. O. J. Stock and Mr. Carl Whorton speak of Dr. Appleton. He does not know what the litigation was that Dr. Murphree spoke about. Mr. Boycan spoke to him about coming to Chicago. He is to receive $40 a day, with his expenses for the time that he is absent from home.

TESTIMONY OF DR. D. T. BOOZER

Dr. D. T. Boozer was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Dr. D. T. Boozer testified that he resides in Gadsden, Ala. He considers Dr. Goddard's reputation for truth and veracity as bad, and from his reputation would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he was licensed in 1914. He was practicing with his brother before he finished school. At that time he did not know that this was in violation of the law.

Dr. Boozer has known Dr. Appleton about one year. Mr. Boycan saw the witness about coming to Chicago. He is to receive $40 per day, with expenses, for the time that he is absent from Gadsden. There are seventeen doctors left in Gadsden during the absence of the three who are here to testify.

The witness has heard Mr. Carl Whorton, Mr. H. B. Myers, and Mr. Lokey, a druggist, who sells Wine of Cardui, talk about Dr. Appleton. He also heard Mr. Stock talk about Dr. Appleton. He heard Mr. Stock speak of Dr. Appleton when he first came to Gadsden. Dr. Boozer rented his office from Mr. Stock and Mr. Stock told him that Dr. Appleton was not reliable, very uncertain, and he would not have very much to do with him. Dr. Johnson and Dr. Murphree are also located in Stock's building, but Dr. Appleton is not. Mr. Stock stated he did not care about renting Dr. Appleton office space.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated that he bases his opinion on the statement of the four men whom he mentioned and on the opinion of other people whom he could not remember.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he understands what it is to swear that a man's general reputation for truth and veracity is bad, and from what he heard said by other people he would doubt Dr. Appleton's word.

DEPOSITIONS

Several depositions were then read after which court adjourned until Friday, June 2, 1916, at 10 o'clock.

June 2, 1916, Morning

TESTIMONY OF MRS. LIZZIE GATES

Mrs. Lizzie Gates was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. Lizzie Gates testified that she resides in Frankfort, Ala. She knows Dr. William Henry Greer who attended her a year ago. She married her second husband seven years ago. Her health was then good, and remained that way for four or five years, when she developed ovarian trouble. She took one bottle of Wine of Cardui and believes it did her good. After that she was treated by four physicians and had an operation for ovarian cyst, which was performed by Dr. Prince. She took no Wine of Cardui, but some whisky on recommendation of Dr. Farnham, who told her it would be a stimulant for her nerves. She took about a pint over a period of two or three months. She then went to see Dr. Greer at Tuscumbia. She had taken about a bottle of Wine of Cardui from the time the four physicians treated her until the time she saw Dr. Greer. This was before the operation. Mrs. Gates stated that she had never told Dr. Greer that she had taken Cardui and whisky together. She did not tell him she wanted to get off the habit, as she had no habit.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that she probably had ovarian trouble ten or twelve years before she was operated on. She went to see Dr. Greer after the operation because of nervousness. Dr. Greer did not examine her. She told him about the operation and the treatment which had been given her by different doctors. She also told him what she had been taking. She took the medicine which Dr. Greer gave her and became better. She is not well yet.

TESTIMONY OF MR. W. H. GATES

Mr. W. H. Gates was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Gates is the husband of Mrs. Gates, the previous witness. He stated that his wife became sick about two years after they were married. She took one or two bottles of Wine of Cardui. He does not know exactly which. He did not hear the conversation between Mrs. Gates and Dr. Greer, and was not present when Dr. Greer examined her.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he does not know how much Wine of Cardui Mrs. Gates took before her operation. He doesn't know exactly how long it was after the operation that he took her to Dr. Greer—probably six or seven months. She was using whisky during that time. She is better now than before she went to see Dr. Greer.

TESTIMONY OF MR. STEPHEN JACKSON MONTGOMERY

Mr. Stephen Jackson Montgomery was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Montgomery testified that he lives in Franklin County, and he has known Dr. Fennell for seventeen or eighteen years.

He has never drunk any Wine of Cardui, and Dr. Fennell never saw him drink any of it with a man named Lipscomb or anybody else.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he drinks beer and whisky sometimes. He has never drunk tonics. He drank some Jamaica Ginger, and some bitters called "Morning, Noon and Night," with a picture of an owl on the bottle. He has never drunk any Hostetter's Bitters. He believes that even when he is drunk he knows what he is drinking. He says he drinks pretty often—when he can get it. He does not know if Dr. Fennell ever saw him drink. He has no recollection of it.

TESTIMONY OF MRS. MARY SEIBERT

Mrs. Mary Seibert was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. Mary Seibert testified that she resides in Summerdale, Ala. She became acquainted with Dr. Krohn, of Chicago, in 1912, at the Planter's Inn when she was housekeeper there. She met him in August and he left Summerdale in November. The inn was owned by a company and the proprietor was called "Highball" Morgan.

In a cottage just west of the hotel Mrs. Clemmons lived. The people used to help Mrs. Clemmons out. Among those who helped her were Mrs. Fancher and Mrs. Barnes. Dr. Krohn went to see Mrs. Clemmons twice in the latter part of October.

There was another hotel in the town known as the Ravone, which was owned by a man named Schmidt. There was also a boarding house known as McCurdy's boarding house, conducted by Mrs. Beasley. McCurdy had a reputation for killing dogs. He was a sheep raiser. Dr. Krohn was called to McCurdy's boarding house to see Mrs. Beasley's daughter in the latter part of October. The witness stated that Mrs. Clemmons had five children. The girl who was ten years old worked for her in the hotel.

CROSS EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that she knew Dr. Krohn did not see Mrs. Clemmons but twice because Mrs. Clemmons told her so.

The Court ruled that all evidence relating to his having seen Mrs. Clemmons but twice should be stricken out.

The witness testified that Dr. Krohn went to McCurdy's boarding house only twice. She knows this because she remembers the number of times they came after him.

Mrs. Seibert testified that Mr. Richter saw her about coming to Chicago. Mr. Richter agreed to pay her expenses and $5 per day. Mr. Richter told her that Dr. Krohn had said up here that Mrs. Clemmons had been drinking Wine of Cardui. Mr. Richter told her that instead she had been drinking laudanum. Mr. Richter did not tell her how much laudanum Mrs. Clemmons drank.

The witness stated that she made a memorandum in her mind of the visits made by Dr. Krohn. He did not visit anywhere except at the two places mentioned. He went to the stores and the postoffice. She does not know how many times he went to the postoffice. She was not out in the front part of the house all the time. Dr. Krohn might have been called out at times when she was in the kitchen.

REDIRECT EXAMINATION BY MR. FOWLER

Mr. Fowler asked the witness what Dr. Krohn was doing in Summerdale.

The Court ruled the question be stricken out on the ground that Dr. Krohn himself had stated on the stand that he was not down there practicing medicine but on business.

TESTIMONY OF MRS. EMMA CLEMMONS

Mrs. Emma Clemmons was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. Clemmons testified that she lived in Summerdale, Ala., from April to December, 1912, near the Planter's Inn. She was sick most of the time she lived there. Dr. Krohn came to see her once with Dr. Armistead, and once afterward. She had taken about a teaspoonful of laudanum, which she had been taking for two years. She stated that she had never taken a dose of Wine of Cardui in her life and had never tasted it. She stated further that she never told Dr. Krohn that she had ever taken Wine of Cardui. Her husband sent for Dr. Krohn at 11 o'clock at night. She was conscious when Dr. Krohn arrived. Dr. Krohn did not pump out her stomach. There was no rubber tube in the house. Dr. Krohn gave her husband some tablets and told Mr. Clemmons to give her one every two hours, until the pains were eased.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that she had taken a teaspoonful of laudanum at a dose on the day Dr. Krohn called. She was delirious when he arrived. She has stopped taking laudanum for over a year. She does not take anything in the place of it. She bought the laudanum from Mr. Cherry and some from Mr. Baldwin. She used to take laudanum in teaspoonful doses three times a day.

REDIRECT EXAMINATION BY MR. FOWLER

The witness stated she did not know what delirious means. She knew what was going on.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that she sent for Dr. Krohn because she was in misery. She had not taken any laudanum that day. She took some in the morning at 7 o'clock but not at night.

TESTIMONY OF MR. R. N. M'CURDY

Mr. R. N. McCurdy was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. McCurdy testified that he opened a boarding house in Summerdale in 1911. He raised sheep. Every time a dog died there was talk that somebody had poisoned it and it was generally laid on the sheep man. He ran the boarding house about five months; it was then conducted by Mrs. Beasley. He does not know Dr. Krohn, and, so far as he knows, he has never seen him.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he is to receive his expenses and $5 a day for coming to Chicago.

TESTIMONY OF MRS. C. C. BEASLEY

Mrs. C. C. Beasley was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. Beasley testified that she lived in Summerdale, Ala., in 1912 and conducted McCurdy's boarding house. She met Dr. Krohn one night when her daughter was sick. Dr. Krohn called and stayed for an hour. The daughter had a high temperature and was delirious. It was said that she had pellagra. She told Dr. Krohn all she knew about her daughter. Nothing was said about Wine of Cardui. Her daughter had never taken a dose of Wine of Cardui. Dr. Krohn only came to see the daughter once.

RECROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that the above incident occurred in 1912.

TESTIMONY OF MR. WILLIAM P. BALDWIN

Mr. William P. Baldwin was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Baldwin testified that he had conducted a store in Summerdale in 1912 and carried laudanum. He also carried Wine of Cardui. He did not sell Mrs. Clemmons any Wine of Cardui. He did sell her laudanum. He knows Dr. Krohn. Dr. Krohn was in Summerdale in 1912.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that in the State of Alabama, in 1912, it was not against the law to sell laudanum. It is now. He

has no license to sell laudanum at the present time. He still sells Wine of Cardui. He did not sell Mrs. Clemmons laudanum every time she came for it because he thought she was using too much of it. He knew she had the habit and still he was selling it to her.

TESTIMONY OF DR. SIDNEY D. ARMISTEAD

Dr. Sidney D. Armistead was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Dr. Armistead testified that he lives in Foley, Ala. He treated Mrs. Clemmons in 1912. She had nephritis and was pregnant. He called Dr. Krohn in to see Mrs. Clemmons one morning when she was suffering from uremia. This was the day after the child was born. Mrs. Clemmons was conscious. He told Dr. Krohn the nature of the case and was present when Dr. Krohn talked with Mrs. Clemmons. So far as he knows Mrs. Clemmons did not tell Dr. Krohn that she had been taking Wine of Cardui. He did not hear Wine of Cardui mentioned. Mrs. Clemmons had been taking laudanum. It was a charity case. Dr. Armistead was at that time a young practitioner and wanted Dr. Krohn's opinion, so he went over and called him. He did not know whether Dr. Krohn went back the same night or the next night. He did not see any Wine of Cardui bottles around the house, nor any stomach pump. He did not see Dr. Krohn pump Mrs. Clemmons' stomach out, nor did he know anything about it.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he had no idea how much laudanum Mrs. Clemmons had been taking. He did not know that Dr. Krohn was there a second time, so he could not say whether or not Dr. Krohn pumped out the stomach. He gave her laudanum to take by mouth once or twice. He did not see any marks on the patient indicating that she used a hypodermic needle. He is familiar with laudanum. The dose is ten drops. He could not say whether Mrs. Clemmons had ever taken Wine of Cardui. He never saw her take any of it. She may have taken a lot of it for all he knows.

After the reading of several depositions an adjournment was taken until Monday, June 5, 1916.

June 5, 1916, Morning

TESTIMONY OF MRS. E. L. CORAM

The Court met pursuant to adjournment. Mrs. E. L. Coram was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mrs. E. L. Coram testified that she resides in Benevolence, Ga. She has known Dr. Tanner, of Benevolence, about eight years. Dr. Tanner treated her about a year ago for blood pressure. He also treated her for bladder trouble about two years ago. She did not tell Dr. Tanner that she had taken any Wine of Cardui. She took half a bottle of Wine of Cardui about two years ago, and about seven weeks ago she took a whole bottle. She took the half bottle in doses of a tablespoonful three times a day, on the advice of a negro woman. This was after the first time Dr. Tanner had treated her. Neither Dr. Tanner nor any other doctor had done her any good. Dr. Tanner gave her medicine for the bladder trouble—some of it by prescription and some that he brought himself. She took the whole bottle of Wine of Cardui about six weeks ago.

Q.—What did you take it for? *A.*—I had a hurting in my side, both sides, and almost everybody thought that it was appendicitis in both sides, and a lady friend of mine asked me to take some of her Cardui. She had been taking it for a number of years, and she said she would send me down some.

Mr. T. J. Scofield:—I object to what she said.

The Court:—Yes.

Mr. Fowler: Q.—What were you taking it for? *A.*—For this pain in my side.

Q.—What effect did it have? *A.*—It did not have any effect; the hurting stopped, that is all I know.

The witness stated that she took all of the first bottle of Cardui. She did not tell Dr. Tanner or anyone else that she took Cardui to brace her up.

Cross-examination was waived.

TESTIMONY OF MR. CARL WHORTON

Mr. Carl Whorton was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Whorton testified that he resides in Gadsden, Ala., where he is in the drug business. He is acquainted with Dr. Appleton and has known him for fifteen or twenty years. He also knew Dr. Appleton in Center, Ala., at which place Dr. Appleton had relatives. He considers the general reputation of Dr. Appleton for truth and veracity in Gadsden as bad, and from that reputation he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness stated that he is a licensed druggist. Dr. Appleton's prescriptions are not generally sent to his store, but some of them are. The witness is a married man. His brother is also a married man and is associated with him in business. Dr. Appleton is not the family physician of either the witness or his brother.

The witness stated that Mr. E. H. Cross and Mr. E. T. Schuler had made statements regarding the reputation of Dr. Appleton. The city health officer is Dr. Murphree, and the county health officer is Dr. Camp. Mr. Whorton stated that he had made statements to Dr. Murphree, following some litigation, to the effect that Dr. Appleton's reputation for truth and veracity was bad. He does not remember that he made such statements to Dr. Boozer. He may have told Dr. Boozer that Dr. Appleton was unreliable from a business standpoint. He does not know that he ever made such statements to Dr. Johnson.

The witness sells Wine of Cardui in his drug store. Mr. Metcalf, agent for the Chattanooga Medicine Co., and Mr. Boycan arranged for the witness to come to Chicago. He is to receive payment of expenses and $5 a day. He stated that he had a conversation with Dr. Appleton lately. He told Dr. Appleton that he did not make the exact statement that he would not believe him on oath, but he did say that he would not believe the evidence he had given in this case.

Mr. Boycan told the witness that Dr. Appleton swore that Cardui was drunk throughout that neighborhood as a beverage and it made habitués of some of its users, and that it had made laudanum fiends out of some. The witness does not know whether Mr. Boycan told the truth about the names that had been given, nor does he know that the names were given in confidence. Mr. Boycan mentioned the names.

REDIRECT EXAMINATION BY MR. FOWLER

Attorneys for the plaintiff endeavored to introduce the content of a statement which Dr. Appleton read to the witness. The Court refused to admit the witness' memory of the statement but allowed the introduction of the remembrance of the witness' conversation with Dr. Appleton. The witness stated that Dr. Appleton stated that in this statement were words to the effect that Mr. Whorton did not say that he would not believe Dr. Appleton on oath.

TESTIMONY OF MR. WILLIAM ACKER COBB

Mr. William Acker Cobb was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. FOWLER

Mr. Cobb testified that he resides in Center, Ala. He has known Dr. Appleton for twenty years or longer. Dr. Appleton lives in Gadsden, Ala., which is about 25 miles from Center. The witness is frequently in Gadsden. He considers Dr. Appleton's general reputation for truth and veracity as bad and he would not believe him on oath.

CROSS-EXAMINATION BY MR. T. J. SCOFIELD

The witness testified that he ran a general merchandise store for two years. They fill prescriptions and run a drug store now; they sell some patent medicines, among them Wine

of Cardui and Black Draught. He goes to Gadsden about once every thirty days and to Chattanooga two or three times a year. He buys most of his goods in Gadsden and in Rome. He has a nephew in Gadsden and a number of friends there, with whom he talked about Dr. Appleton.

Q.—Whom did you hear what you heard from? *A.*—Every man whom I talked to.

Q.—Well, whom did you talk to? Did you talk to your nephew? *A.*—I don't believe I have discussed the question with my nephew.

Q.—Who did you touch the question with? *A.*—John Doe, Bill Jones and another—

Q.—John Doe. Now, where does John Doe live? *A.*—He lives in Gadsden.

Q.—What is John Doe's address? *A.*—Gadsden will get him, I guess.

Q.—What is his business? *A.*—Well, we were talking—

Q.—No, no; what is his business? John Doe's business? *A.*—I don't know where John Doe lives there—there is not such a man, but—

Q.—Then you are mistaken when you say you talked to John Doe. What did you mean telling me, under oath, saying that you talked to John Doe, and then saying there is no such person? *A.*—I mean to say I talked to those people that were there—

Q.—I am asking you why you told me that. *A.*—That part is not in it.

Q.—There is no such man as John Doe, then? *A.*—No, sir.

Q.—Then when you said you talked with John Doe, you told a thing that is not true; is that true? *A.*—That is not in it, I would say.

Q.—You told a thing that was not so? *A.*—Yes, but—

Q.—When you told me that addressing him at Gadsden would catch him? *A.*—Yes—

Q.—That was not so, was it? *A.*—No. That is not so.

Mr. T. J. Scofield:—Well, that is all.

REDIRECT EXAMINATION BY MR. FOWLER

Q.—What did you mean when you say John Doe and Bill Jones?

Mr. T. J. Scofield:—I object to that.

THE COURT:—I would like to know. We may not stop here. Go ahead, Mr. Fowler.

Q.—Please tell what you mean when you said you had talked with John Doe and Bill Jones? *A.*—He wanted to know how—who it was—

THE COURT:—No, no. You don't know what he wanted to know. He asked you a question, and asked you who you had talked with, and you said John Doe and Bill Jones.

The Witness:—Yes. Well, what I had reference to was the men who I visited there, you know, different men—no interest to me at all; men who were—I was visiting there—friends of mine there in Gadsden.

THE COURT:—Well, how long have you known this John Doe.

The Witness:—There ain't no John Doe. I just added that in there. There is no John Doe—

Mr. Fowler:—You have heard the legal term—

Mr. T. J. Scofield: Q.—What did you mean when I asked you what John Doe's address was, and you told me to address him at Gadsden and that would get him? *A.*—I mean the way you are asking me, who all I did talk to down there—that kind of irritated me, because there is so many different men down there—

Q.—Yes? *A.*—friends of mine, and the inference was—

Q.—You did not want to give the names, then? *A.*—Oh, I don't care nothing about the names, no.

Q.—How did you expect me to reach John Doe, who you say told you—talked to you about Dr. Appleton's reputation by addressing him at Gadsden? You knew there was no such address, didn't you—no such person? *A.*—Yes.

Mr. T. J. Scofield:—Well, that is all.

After some depositions had been read an adjournment was taken until 2 o'clock p. m. the same day, Monday, June 5, 1916.

June 5, 1916, Afternoon

The Court met pursuant to adjournment and three depositions were read.

TESTIMONY OF MR. FRANCIS P. DUNNINGTON

Mr. Francis P. Dunnington was called as a witness for the plaintiff in rebuttal.

DIRECT EXAMINATION BY MR. HOUGH

Mr. Dunnington testified that he resides near Charlottesville, Va. He teaches in the University of Virginia. He began teaching in 1870 and has taught there continuously. He knew Dr. J. W. Mallett, who came to the university in 1868. Dr. Mallett died in November, 1912. Dr. Mallett came to the university as professor of analytic and industrial chemistry. He then became professor of general chemistry. He taught in the University of Virginia from 1868 to 1912, excepting two years—one when he went to Texas as professor of chemistry, and the next year when he went to the University of Pennsylvania. The witness changed this to a medical college in the city of Philadelphia.

The witness stated that in his opinion Dr. Mallett was one of the leading chemists in the United States as well as in Europe. He was also Doctor of Medicine. The witness named various scientific societies to which Dr. Mallett belonged. He stated that Dr. Mallett received LL.D. degrees from four universities—the Johns Hopkins and the William and Mary. During 1906 and 1907 Dr. Mallett did work for the Chattanooga Medicine Co. He endeavored to diminish the amount of alcohol which was put in Wine of Cardui. The witness stated that this work ran over several months.

Cross-examination was waived.

After the reading of some depositions an adjournment was taken until Tuesday, June 6, 1916.

(To be continued)

Correspondence

The Ever Present Question of Dispensary Abuse

To the Editor:—Dr. J. Whitridge Williams, in his address published in THE JOURNAL, June 17, 1916, p. 1902, dwelt at some length on the question of dispensary abuse. He advocated the "socialization of medicine" for the cure of many evils now connected with the practice of medicine. Some such system as the *Krankenkassen* of Germany, or the national health insurance law of England, which requires employer and employee, as well as the state to contribute, ought to be adopted in this country. Under this system the patient contributes toward the doctors' and hospital fees, with the result that it raises the man of moderate means above the level of a charity recipient, and does not place all the burden of the medical care of the indigent sick on the physician, who is often compelled to earn a living for himself and dependents. That there is a possibility of the desired social reforms becoming a reality in the course of time we may well assume from the fact that over thirty states have already adopted the workmen's compensation laws, and that a tentative health insurance bill has recently been enacted in New York (THE JOURNAL, June 17, 1916, p. 1951).

However, we must bear in mind that it is "a long way to Tipperary." It may take a generation before the wished for reforms come about; we may or may not live to see the day of the "socialization of medicine." As it is, the practice of medicine at present is in a state of transition, and the evils of which many of us complain are apt to be on the increase, as Dr. Williams himself admits. And yet he thinks that the abuses complained of are less general than is commonly believed. The majority of Baltimore practitioners with whom I have spoken feel convinced that many people who are able to pay receive free treatment at the dispensaries. These abuses do exist, in spite of the fact that some fortunately situated members of our profession would make us believe that it is all a delusion. Whoever read my paper on "Dispensary Abuse," which was published in the *Maryland Medical Journal* in June, 1915, and who is not prejudiced on this question, will agree that this abuse is a serious problem, the solution of which ought not to be deferred. In Dr. B. S. Veeder's article on "Standards for Determining the Suitability of Patients for Admission to a Free Dispensary" (THE JOURNAL, July 8, 1916, p. 85), I find among the replies, sent by the dispensary authorities to his inquiry as to the methods used in Baltimore to determine the worthiness of the applicant for free treatment, the following statement: "There is no standard, nor is there any attempt at financial investigation," a fact too well known by many of us in this city. The patient who, notwithstanding his ability to pay, resorts to the public dispensaries for purely selfish reasons, encroaches on the legitimate economic interest of

the practitioner, and the profession should feel no hesitancy in combating this invasion.

Dr. Williams maintains that many patients resort to dispensaries to get better treatment, either because they could not be examined properly, on account of the lack of equipment in the office of the average general practitioner, or because the doctors whom they happened to consult were not efficient. The inefficiency of medical men should be a diminishing factor in driving patients to dispensaries, since medical colleges are turning out better educated and more competent men from year to year. When it comes to our specialties, there is no justification for a person in good circumstances to frequent a dispensary, for he will usually find the same physician conducting the free clinics. Now this physician could surely treat him just as well, if not better, at his private office, where he has more time at his disposal. If the patient does resort to the dispensary, it is merely to avoid parting with his cash. On the other hand, if one medical man treats him carelessly, he is at liberty to go to another who will treat him properly, but he has no moral right to go to a free clinic. As I have stated in the paper above referred to, the bestowal of free treatment on those who can afford to pay exerts an evil effect in many ways. Not only does it stunt the moral sense of the applicant, and weaken his self-reliance by making him a recipient of charity, but it also robs the deserving physician of part of an income.

Dr. Williams justly asserts that a private practitioner cannot compete with a well equipped dispensary, which has a number of trained nurses and a well organized social service department at its disposal. But why should members of an honorable profession be permitted to become victims of circumstances over which they have no control?

Socialization of medicine would probably be the best solution for many of the difficulties we are up against, but shall we, when so much can be done in the meanwhile to mitigate the evil, fold our arms and do nothing until this question adjusts itself in a remote future?

The dispensary abuse should be mitigated, and if the remedy is only temporary, it should, nevertheless, be applied until the relation of medical practice to society is properly adjusted. Dispensaries of the better type in this city have social service departments, and the one attached to the Johns Hopkins Dispensary is a model of its kind. However, it would add to its laurels by becoming a potent agency in wiping out an abuse which does great harm to a goodly part of our professional brothers. All that the dispensary authorities would have to do would be to refer every applicant whose personal appearance does not indicate that he is poor or needy, for investigation. It is an old axiom, "Where there is a will, there is a way."

Another means of overcoming dispensary abuse would be the adoption of medical partnerships, or the group plan, already in vogue in many communities. By means of this plan, men of various specialties would combine, e. g., a roentgenologist, the laboratory man, the internist, the eye, ear nose and throat specialist, etc. Consequently there would be no excuse for a patient to frequent the public dispensary for a diagnosis requiring either the use of different apparatus, not to be found in the office of the average practitioner, or the consultation of different specialists.

M. M. SAVAGE, M.D., Baltimore.

Statistics on Hay-Fever Plants Wanted

To the Editor:—As the fall hay-fever season commences in most localities in August, the American Hay-Fever Prevention Association requests interested observers in each state to report on any or all of the following points:

(1) Beginning of the florescence of the (a) common ragweed (*Ambrosia elatior*), (b) giant rag-weed (*Ambrosia trifida*), (c) the western rag-weed (*Ambrosia psilostachya*), (d) the cockle bur (*Xanthium pennsylvanicum*), (e) marsh elder (*Iva ciliata*), (f) the western marsh elder (*Iva axillaris*), and (g) the gaetnerias. These plants bloom in most sections in August and September, and are all wind-pollinated and potentially hay-fever plants.

(2) The date of the beginning of fall hay-fever in these sections, and the coincidence of its development with the florescence of one or more of these plants.

A large number of replies will increase the statistical value of the reports. Any other statistical information will be appreciated. Address American Hay-Fever Prevention Association, Audubon Building, New Orleans, La.

W. SCHEPPEGRELL, M.D., President.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CITY AND RURAL HEALTH

To the Editor:—Within the past several years, I have noticed some articles relative to country life conditions, and that the rural sections were less sanitary than the city. I think I have also seen somewhere the statement or opinion given that most of the epidemics in the city came from the country, and that the death rate in the country was greater than in the city. I cannot recall the article or writers. Have careful investigations been made in the last several years, and do they bear out the foregoing statements? I have seen some statistics, but some of these are thought inaccurate, as those of the city often include deaths of persons brought in for better care and treatment; there are usually no regulations requiring accurate records in the rural sections, and so on.

Any information regarding the foregoing will be greatly appreciated.

D. T. KIZER, M.D., Springfield, Mo.

ANSWER.—There can be no doubt that the average sanitary conditions are worse in the rural districts than in the large urban centers except so far as overcrowding and its direct effects are concerned. It is notorious that the means for the disposal of excreta are more generally bad in the country than in the town, although it is true that in some parts of some cities wretched conditions in this respect are still to be found. The chances of contamination of the water supply by such insanitary dispositions are evidently far less in the town tenement with its piped supply than in the village communities or farms where the water is taken from an open stream or from a shallow well. Animals which are liable to serve as distributors of parasitic diseases constitute a greater danger in the country than in the town. Breeding places for flies are the commonplace of farm conditions, the exception in the town. Finally, the administrative sanitary control of the towns is better. The statement that most of the epidemics in the city come from the country is evidently too general. The majority of epidemics commence with preexisting cases, and those cases may as well exist in the town as in the country; and in the former, owing to the congestion of population, there is larger opportunity for infection by contact. On the other hand, certain diseases lend themselves peculiarly to propagation by means of products—notably milk—of the rural districts which are sold in the towns. It is therefore to be expected, and it has been proved, that a large number of urban epidemics of such diseases as typhoid fever, germs of which may lie latent in carriers and be propagated by products like milk, are traceable to a rural source. The insanitary conditions which prevail in the country are, however, largely outweighed by the overcrowding in the towns, as is proved by the relative death rates. The life tables just published by the Bureau of Census (United States Life Tables, 1910, Bureau of the Census, Department of Commerce; copy sent free to every medical man on application to Director of the Census, Washington) give a series of tables of the vital statistics for the white population in the cities and in the rural part, respectively, of the original registration states. These tables are based on the estimated population, 1910, and on the reported deaths in 1909, 1910 and 1911. We quote from pages 38 to 45, column 7. This column shows the numbers of the population living in age interval, to one death in the same age interval (calculated for a hypothetic stationary population). The higher the figure the lower the mortality.

These figures definitely dispose of the allegation that the mortality in the country is higher than in the town. It is nevertheless certain that there is in the rural districts a great deal of preventable disease, and there is some indication that the young rural population has a higher morbidity than the young people of urban districts. This state of affairs is in part attributable to the notoriously defective condition of the rural schools from the point of view of sanitation. It is not surprising, therefore, to find the great advantage of rural environment shown by mortality returns for other periods

POPULATION LIVING IN AGE INTERVAL TO ONE DEATH IN THE SAME AGE INTERVAL

Age Interval	Cities		Rural Parts	
	White Males	White Females	White Males	White Females
0- 1	6.77	8.30	8.94	11.01
11-12	410.63	476.24	484.46	550.61
21-22	189.93	228.99	191.72	209.44
25-26	174.10	191.06	194.57	191.04
45-46	65.31	88.78	113.00	127.59
60-61	25.47	32.12	43.16	49.34

of life markedly diminished for white males between the ages of puberty and 25, and reversed for white females during the same age periods. The urban females show a lower mortality than their rural sisters between the ages of 18 and 25. Accurate statistics are not available, but such as exist indicate that the relatively increased mortality among adolescents and young adults in rural districts is largely due to communicable diseases, and especially tuberculosis.

USE OF TUBERCULIN AS A DIAGNOSTIC AGENT

To the Editor:—Please give me a bibliography on tuberculin as a diagnostic agent. E. R. VAN DER SLICE, M.D., Marquette, Mich.

ANSWER.—The following is a partial list of references on the subject for the last two years:

Brown, E. M.: Diagnostic Value of Cutaneous Tuberculin Test in Recruiting, *U. S. Naval Med. Bull.*, July, 1914.
Kinghorn, H. M.: Comparative Value of von Pirquet and Subcutaneous Tuberculin Tests in Diagnosis of Tuberculosis in Adult, abstr., THE JOURNAL, July 25, 1914, p. 349.
Frehn, W.: Sensitization Index with Tuberculin Skin Reaction, *Beitr. z. klin. d. Tuberk.*, July 30, 1914; abstr., THE JOURNAL, Jan. 2, 1915, p. 90.
Kraemer, C.: Subcutaneous Tuberculin Reaction in Diagnosis, *München. med. Wchnschr.*, Jan. 12, 1915.
Vos, R. H.: Tuberculin in Diagnosis and Treatment of Pulmonary Tuberculosis, *Nederl. Tijdschr. v. Geneesk.*, Jan. 23, 1915.
Rogers, O. F., Jr.: Study of Children with Positive Skin Tuberculin Reactions, *Boston Med. and Surg. Jour.*, Feb. 4, 1915; abstr., THE JOURNAL, Feb. 20, 1915, p. 695.
Cattermole, G. H.: Tuberculin Tests in Children of Colorado, THE JOURNAL, Aug. 28, 1915, p. 782.
Von Lutzner, M.: Detection of Focal Reaction after Tuberculin Test, *München. med. Wchnschr.*, Aug. 10, 1916; abstr., THE JOURNAL, Sept. 25, 1915, p. 1148.
Glover, E. G.: Subcutaneous Tuberculin Injections and Diagnosis of Pulmonary Tuberculosis, *Brit. Jour. Tuberc.*, October, 1913.
Clovis, E. E.: Use of Tuberculin in Diagnosis of Pulmonary Tuberculosis, *West Virginia Med. Jour.*, February, 1916.
Selter, H.: Intradermal Tuberculin Reaction in Diagnosis of Tuberculosis in Guinea-Pigs, *Deutsch. med. Wchnschr.*, Jan. 20, 1916; abstr., THE JOURNAL, March 11, 1916, p. 845.
Zitronblatt, A. Y.: Skin Tuberculin Test in Surgical Practice, *Russk. Vrach*, 1915, xiv, No. 30; abstr., THE JOURNAL, March 11, 1916, p. 850.

ROENTGEN-RAY DERMATITIS

To the Editor:—Can you make any suggestion for the relief, or possible eradication, of a dermatitis of the hands, following repeated Roentgen-ray exposures, several years ago? The patient is a surgical nurse, and has not been exposed for several years, but the condition returns from time to time. It is characterized by burning and itching, and sometimes by pain, and the eruption of numerous small vesicles, lasting often for several days. E. L. C., M.D.

ANSWER.—The patient evidently has a chronic Roentgen-ray atrophy of the hands, which become irritated at times—probably from external irritation. When these attacks of acute dermatitis occur they may be reduced by the use of wet dressings of solution of aluminum acetate, N. F., Fourth Edition (Burow's solution), 1 part, to water, 15 parts. Solution of aluminum acetate, N. F., is an 8 per cent. solution, which should be made according to the directions furnished in the National Formulary.

A few days' use of these wet dressings would very likely get rid of the acute attacks. Between the acute attacks the hands should be protected from irritation as far as possible. It would be desirable to soften them up every night by greasing with a bland ointment like cold cream. When keratoses on the hands show evidence of chronic irritation or of increase in size, they should be destroyed. This can be done by skilful applications of radium or Roentgen rays, by freezing with carbon dioxid snow, or by excision and putting on small grafts. Of course the danger of epithelioma in these hands is great, and suspicious lesions should not be neglected but promptly destroyed.

Medical Education and State Boards of Registration

New Mexico April Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports the written examination held at Santa Fé, April 10-11, 1916. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 3, of whom 2 passed and 1 failed. Three candidates were licensed through reciprocity, and 13 were licensed on satisfactory credentials. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Memphis Hospital Medical College	(1904)	75
Marquette University	(1914)	85
FAILED		
Mississippi Medical College	(1912)	64

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Epworth Central Medical College	(1905)	Oklahoma
University of Tennessee	(1892) Oklahoma; (1907)	Tennessee

College	Year Grad.	Total No. Licensed
LICENSED ON SATISFACTORY CREDENTIALS		
Hahnemann Medical College and Hospital, Chicago	(1897)	1
Central College of Physicians and Surgeons	(1902)	1
College of Physicians and Surgeons, Keokuk	(1895)	1
University of Maryland	(1912)	1
University of Michigan Medical School	(1912)	1
Barnes Medical College	(1900)	1
St. Louis College of Physicians and Surgeons	(1899)	1
Missouri Medical College	(1886)	1
Bellevue Hospital Medical College	(1896)	1
University of Wooster	(1890)	1
Jefferson Medical College	(1911)	1
Medical College of the State of South Carolina	(1905)	1
Memphis Hospital Medical College	(1893)	1

Massachusetts May Report

Dr. Walter P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, May 9-11, 1916. The total number of subjects examined in was 14; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 22, of whom 8 passed and 14 failed, including 4 osteopaths. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Bowdoin Medical School	(1915)	78.6
University of Maryland	(1913)	75
College of Phys. and Surgs., Boston	(1911) 75; (1914)	75.4
Harvard University	(1914)	82.2
University of Pennsylvania	(1899)	79
Queen's University	(1915)	75.9
McGill University	(1910)	80.3
FAILED		
Georgetown University	(1910) 67.5; (1913)	72.9
Kentucky School of Medicine	(1905)	*
Baltimore Medical College	(1913)	63.9
Maryland College of Eclectic Medicine and Surgery	(1914)	71
Maryland Medical College	(1913)	71.4
College of Physicians and Surgeons, Boston	(1913)	63.5
Tufts College Medical School	(1913)	72.2
University of Berlin	(1903)	58
University of St. Joseph's, Beirut	(1894)	67.8

* Did not complete examination.

Preventable Deaths.—Half the deaths under one year are preventable. For every baby who dies, ten endure unnecessary sickness and many are handicapped for life as a result. In localities where a campaign of education has been carried on the death rate among babies has been reduced from 10 to 50 per cent.—*Bull. Lincoln (Neb.) Health Dept.*

Book Notices

TREATISE ON FRACTURES. By John B. Roberts, A.M., M.D., F.A.C.S., Professor of Surgery in the Philadelphia Polyclinic and College for Graduates in Medicine, and James A. Kelly, A.M., M.D., Attending Surgeon to St. Joseph's Hospital. Cloth. Price, $6. Pp. 677, with 909 illustrations. Philadelphia: J. B. Lippincott Company, 1916.

The book opens with a chapter on general considerations. Some of the subjects are not given so thoroughly as they might be in view of the added light which has been shed by the Roentgen ray in recent years. For example, the time of appearance of the various centers of ossification in the epiphysis is not stated with sufficient accuracy. An excellent discussion on general treatment is given, both non-operative and operative, of recent and old simple and compound fractures. Fractures of the skull and face are illustrated by drawings, diagrams and photographs. In the chapter on the spinal column the symptomatology of fractures with cord symptoms at different levels is described and illustrated. Some of the fifteen rules for operative treatment are too finely drawn and somewhat confusing. The valuable ones are: Do not operate when there is complete transverse paralysis. Operate if later symptoms of returning function appear. Operate if there is evidence of partial destruction of the cord, compression from a blood clot or fragment of bone. Photographs of well applied dressings illustrate the article on fractures of the clavicle. Separation of the lower epiphysis of the humerus is not so common as the statistics quoted would indicate. Partial separation in the region of the external condyle combined with juxta-epiphyseal fracture and separation of the internal epicondylar portion are common, but separation of the entire epiphysis along the epiphyseal line is rare except in birth injuries. Fractures of the bones of the forearm are discussed. The reasons for poor results are stated, and the insistence on complete reduction immediately after the injury is timely. Lesions of the carpal bones are discussed too briefly, considering their relative importance, the recent advances in our knowledge and the comparative ignorance of most of the profession on the subject. In fractures of the lower extremity the newer operative measures are considered at length. Epiphyseal separations, especially of the femur, are given consideration. Os calcis and astragalus fractures are described along with their operative treatment. Separate chapters are devoted to fractures of the small and sesamoid bones, birth fractures and gunshot fractures. The book is well written and supplemented by numerous and excellent illustrations.

STEREOROENTGENOGRAPHY OF THE ALIMENTARY TRACT. By James T. Case, M.D. Four Sections. Price, $9 per section. (Dr. Howard A. Kelly's Stereo-Clinic.) Troy, N. Y.: The Southworth Company, 1915.

Since the introduction of the stereoscopic study of operations by Dr. Howard A. Kelly more than thirty volumes of the series have appeared. The four volumes here discussed are devoted to stereoroentgenographic studies by Dr. James T. Case, whose name has been connected with this work from its inception. The material included in the series is divided into four sections: Two cover the methods of examination, the interpretation of the plates and the diseases of the esophagus, stomach and gallbladder; the other two concern the intestines. About 100 stereoroentgenograms are included in the four volumes. By the stereoscopic method the observer is able to appreciate not only the diagnostic points in the fields shown, but also the space relations of the various organs involved. Particularly interesting are those showing cases of cholelithiasis, carcinoma of the stomach and the gastro-enterostomized stomach. Several pictures are illustrative of normal conditions. The text accompanying the stereoroentgenograms is direct and simple and easily understood even by those who have not kept abreast with advances in roentgenology. Dr. Case also considers the fluoroscopic method and its applicability. The method of teaching is chiefly the presentation and analysis of cases; these the author has evidently selected with discrimination from a mass of material. The work is excellently and artistically printed.

Medicolegal

Sufficiency of Information Charging Practicing Without a Certificate

(*State vs. Sanford* (*Wash.*), *154 Pac. R. 1114*)

The Supreme Court of Washington, in affirming a conviction of practicing medicine without a license, says that the questions suggested for reversal were all based on the information. The statute of the state of Washington regulating the practice of treating the sick or afflicted creates a board of medical examiners, and gives such board authority to issue certificates to persons entitled to practice any of the lawful systems or modes of so doing. Three forms of certificates are provided for: first, a certificate authorizing the holder thereof to practice medicine and surgery; second, a certificate authorizing the holder thereof to practice osteopathy, and, third, "a certificate authorizing the holder thereof to practice any other system or mode of treating the sick or afflicted not referred to in this section." It was contended that the information was fatally defective in that it did not state which one of the three certificates provided for by statute the defendant should have had to enable him to do what the state undertook to charge him with having done, and also in not showing which of the three classifications provided for by the statute he came under. But it seems to the court that an information may charge an offense under the statute without including either of these matters. The statute, while it may or may not prohibit a person holding one form of certificate from practicing a system or mode of treatment authorized by another, clearly prohibits a person holding no certificate at all from practicing, attempting to practice, or holding himself out to practice, any system or mode of treatment. An information, therefore, which charges a person with practicing a form of treatment of the sick and afflicted without having a certificate in any form authorizing him to treat the sick or afflicted states an offense under the statute, even though it does not state the particular form of certificate he should have possessed in order to entitle him to practice the particular system or mode of treatment he actually practiced. In the court's opinion the information in the present case, while somewhat crude, was thus definite. In effect it charged the defendant with wilfully and unlawfully practicing, attempting to practice, and holding himself out as practicing, in the county of King, state of Washington, a system and mode of treating the sick and afflicted known as the "chiropractic method," and with actually treating one Mary B. Fox as sick and afflicted by such chiropractic method, all without having at the time of so doing a valid unrevoked certificate from the state board of medical examiners authorizing him to treat the sick and afflicted in such county and state. Clearly it would not aid the understanding to include therein a statement of the character of certificate the defendant should have possessed in order to entitle him to practice the system or mode of treatment he attempted to practice, or to state under which of the three classifications provided for by statute a person would fall who practiced the system or mode of treatment employed by the defendant. Again, it was argued that the information was fatally defective because it did not allege that the defendant was a resident of King County. In support of this it was urged that it is sufficient for the holder of a certificate to record it in the county of his residence in order to entitle him to practice his profession in any county of the state, and that the information, inasmuch as it failed to allege the residence of the defendant, did not negative the idea that his practice in King County was lawful. But the allegation was that he practiced in King County without having a certificate authorizing him to practice in that county. It might be that, in order to convict him of unlawfully practicing in King County without a certificate, the state would be obliged to show that he had no certificate entitling him to practice in any county of the state; but this fact did not render the allegation insufficient.

Class of Errors for Which Physicians and Surgeons Are Liable

(Coffey vs. Tiffany et al. (Mo.), 182 S. W. R. 495)

The Kansas City (Mo.) Court of Appeals, in affirming a judgment for $7,500 damages in favor of the plaintiff for alleged malpractice rendering her blind in her left eye, says that the case turned on the question of whether or not a competent, experienced and skilful oculist inadvertently and negligently used a virulent poison when he intended to use a harmless drug. The gist of the action being negligence, the burden was on the plaintiff to establish by proof, first, that a negligent error was made in the treatment of her eye, and, secondly, that such negligence was the direct cause of her injury. A physician or surgeon is not an insurer that he will effect a cure, or that his diagnosis or treatment of the case will be free from honest errors of judgment. He is not required to come up to the highest standard of skill known to the profession, and when he accepts employment is bound only to exercise such reasonable care and skill as usually is exercised by physicians and surgeons in good standing. As to matters of science, an honest error of a legally qualified physician or surgeon cannot afford a cause of action, no matter how injurious it may be to the patient; while in matters of art, that is, in the performance of surgery, or in the application of remedies, his negligent errors are held to be governed by the ordinary rules of negligence. Thus, a physician should not be held liable for erroneously, but honestly, deciding to perform a surgical operation on a patient, for that would be an error in a matter of science, and the law would be too harsh and severe should practitioners of medicine or surgery be held to know at their peril what were best to be done in a given case. But a surgeon who uses an unclean or rusty knife in an operation, or a physician who administers a dose of medicine without knowing what it is, would be guilty of failing to exercise reasonable care, since an ordinarily careful surgeon or physician would not use an unclean knife, or administer a medicine without knowing what it is. The court agrees with counsel for the defendants that mere proof of a failure to cure, or that a bad result appeared to follow the physician's treatment, of itself, would raise no presumption of absence of proper skill and attention, or of negligence in giving the treatment. The practice of healing, throughout the ages, has been esteemed one of the noblest and most useful of human activities. It is to the interest of mankind that it should engage the attention of the highest ability, skill, and devotion to the conservation and development of the race, and the law will not array itself against this manifest interest by allowing the stamp of guilt or recreancy to be placed on an honest failure to cure, since every physician, no matter how careful and skilful he may be, must fail in many cases to benefit his patients. As a whole, the evidence in this case would support the hypothesis that the plaintiff went to the defendant's office with a comparatively well eye, received a treatment that immediately put out its sight, and that the application to her eye of a 1 per cent. solution of atropin sulphate or of an 8 per cent. solution of ethyl-morphin hydrochlorid could not and would not have produced such an injury. Under such hypothesis, which was well supported by reasonable and creditable evidence, the inference followed, not as one built on other inferences or conclusions, but as one forced by its evidentiary elements, that the defendant who treated the plaintiff, despite his assertions to the contrary, put some other liquid into her eye than that he thought he was using. Of course, he did this unintentionally, and in the mistaken belief that he was using the proper solution; but such a mistake cannot be considered in any other light than as one not of science, but as the result of a lack of reasonable care, and therefore one for which an action will lie in favor of the injured patient. It did not devolve on the plaintiff to prove the kind of poison the defendant put into her eye. Nor did her burden of proof require the introduction of expert evidence to support her charge of negligent poisoning.

Society Proceedings

COMING MEETINGS

Colorado State Medical Society, Glenwood Springs, Sept. 5-7.
Michigan State Medical Society, Houghton, Aug. 15-17.
Oregon State Medical Association, Portland, Sept. 9-10.
Utah State Medical Association, Salt Lake City, Sept. 12-13.

MEDICAL SOCIETY OF THE STATE OF NEW JERSEY

One Hundred and Fiftieth Annual Meeting, held in Asbury Park, June 20-22, 1916

The President, DR. WILLIAM J. CHANDLER, South Orange, in the Chair

Indications for Surgery

DR. EDWARD J. ILL, Newark: Operation should be considered only when it is necessary to save the patient's life from a real or impending danger, or when it is necessary to restore him to health. In the former instance the indication is absolute; in the latter the choice should be left to the patient. Indications for operation must never be based solely on laboratory or Roentgen-ray findings, though these may be of incalculable value as corroborative evidence. Simple adherent or displaced ovaries should not be removed. All ovarian neoplasms should be thoroughly removed; fibroids of the uterus should be removed only for good and sufficient reasons. In over 550 operations for fibroids, I have never seen malignant degeneration, or a recurrence of malignancy after operation. Acute, simple inflammatory or suppurating diseases of the genital tract rarely need operation. More poor work is done in obstetric surgery than in any other branch save abdominal surgery. In many instances of abnormal labor, cesarean section has become the least mutilating and the safest of any obstetric operation. Labor should not be induced before term for the convenience of the patient, the nurse or the physician, but only with all the indications and care of a major operation.

Education of the Nurse

DR. GORDON K. DICKINSON, Jersey City: The question comes up whether it is fair to the applicant, who comes to the hospital to be trained, to use her as much as she is used for the convenience of the institution and to neglect so largely bedside training. Too often this training is left to a subordinate while the nurse paid for this service is seldom seen at the bedside.

Early History of the New Jersey Medical Society

DR. WILLIAM J. CHANDLER, South Orange: In 1766, the year in which this society was founded, New Jersey was a province in the continental possessions of the British government. The Rev. Robert McKean of Amboy, the first president of this society, was a missionary sent from the Society for the Propagation of the Gospel in Foreign Parts. In order to do this they inserted an advertisement in the New York *Mercury* calling a meeting at New Brunswick, June 27, 1766. One of the important matters that came before the society was the arrangement of a fee table for medical and surgical services. The fee for an ordinary visit was 1 shilling 6 pence, and about 1 shilling a mile for mileage. While the fees were small, the doctor furnished medicines, blisters, cups, bleeding, enemas, etc., for all of which he charged, and frequently the bill for these items far exceeded the actual fee. Some of these charges were as follows: Consultations, 15 shillings; plebotomy, 1 shilling 6 pence; amputation of an arm, 3 pounds; delivery in natural labor, 1½ pounds. Local or "inferior" societies were established at once in conformity with the constitution. It was designated that they were to meet every two months and were to report their proceedings to the general society at its semiannual meetings. The second meeting of the society was held at Elizabethtown, Nov. 4, 1766. In the constitution of the society it was stated that its purpose was "the advancement of medical science, the elevation of professional character, and the rendering of efficient service to mankind." The society early

took cognizance of the importance of medical education and agreed that "for the advantage of the youth and the honor of the art of medicine" no man should be taken as an apprentice who was not competent in Latin and did not have some knowledge of Greek, and no man could take less than four years as an apprentice and one year in some school of medicine in this country or in Europe.

Cancer

DR. JOHN G. CLARK, Philadelphia: Any ulcer that does not heal has cancer potentialities. Childs of England has well pointed out the danger signals in cancer. These are as follows:

1. A small lump of any kind in the breast of a woman over 35 years of age is a starting point of cancer in 90 per cent. of the cases; the findings of a lump in the breast should be followed by its immediate removal.

2. The danger signal in cancer of the uterus is irregular bleeding, especially after the menopause, or a change in the character of the discharge.

3. The danger signal in cancer of the lip, mouth, tongue or skin is a wart or sore that will not heal.

4. In cancer of the stomach and intestines the danger signal is not so apparent; obstinate, persistent diarrhea, vomiting, or the passage of blood are danger signals that should be heeded at once.

During the last two years we have treated forty-nine cases of inoperable cancer of the uterus with radium. Our experience has shown that during the last ten years, for every fifty cases subjected to operation, 250 have been abandoned as hopeless. Although radical operation has given the best ultimate statistics, the primary death rate has been unavoidably high, and serious postoperative sequelae have occurred. The abandonment of extensive glandular dissection is justifiable because it adds to the hazards of operation but does not increase the number of permanent cures. There is no middle course in cancer of the cervix. The surgeon had better perform a simple vaginal hysterectomy or a high amputation of the cervix with extensive cauterization than to attempt the radical operation if he is not prepared to execute details. If the growth has invaded the parametrium to a point beyond the outer limits of the ureters, or has found lodgment in the iliac glands, the case must with rare exceptions be regarded as hopeless so far as surgical extirpation is concerned. In cancer confined to the fundus, recurrence does not take place in more than 50 per cent. of the cases, while in cancer of the cervix only about 30 per cent. of the cases escape recurrence. Surgical extirpation should be attempted only in clearly operable cases, leaving the large remainder to seek relief through therapeutic measures. During the last two years, forty-four inoperable cases of cancer of the uterus, vagina and urethra have been treated by the application of from 85 to 100 gm. of radium in a platinum capsule shielded by rubber for twenty-four hours. This treatment was repeated at the end of six weeks. With two exceptions there were no disagreeable effects from the radium. We have adhered to the rule never to operate in any case that was healed locally by radium. This series shows that radium is no universal panacea for cancer, even when the growth is strictly localized, but it possesses certain advantages. The stay in a hospital required in operative cases averages three weeks; when radium is used, three days. The postoperative results of the Percy method fall far short of the results obtained by radium. Removal of the uterus in cancer of the fundus has given such good results that one is not justified in taking chances with radium. In cervical growths the opposite is true. In the borderline cases of cancer of the cervix we employ radium.

The Morbidity of Childhood and the Mortality of the Second and Following Decades

DR. THOMAS N. GRAY, East Orange: My object is the prevention of those deaths which occur in later years which may be due to the diseases of childhood which are preventable through the prophylaxis of noncommunicable diseases, through foreknowledge and thorough examination of the patient, and immunization against communicable diseases. There is a possible etiologic relationship between rheumatism, diphtheria, scarlet fever, measles and whooping cough in the first decade of life, and heart disease, chronic nephritis and pulmonary tuberculosis in the second and third decades of life. We know that scarlatinal rheumatism may cause many cases of endocarditis and damaged heart valves. In a child, typical polyarthritic manifestations of rheumatic infection are a common occurrence, and the cardiac complications of rheumatic infection are not only more common in the child than in the adult, but, as a rule, are more severe. I believe that a large percentage of the deaths in later years from organic heart disease and nephritis are due to the preventable diseases of childhood. In diphtheria many physicians wait for the report from the laboratory before giving antitoxin, and too many discard their suspicions of diphtheria on the receipt of a negative report. Epidemics of scarlet fever, diphtheria, measles and whooping cough should be controlled as effectively as we now control epidemics of smallpox. Health officers have the same authority to control other communicable diseases as they have to control smallpox, but they do not exercise it because they fear public opinion. Tuberculosis can be controlled only by the removal of patients with open cases to sanatoriums and by placing infected children in preventoriums. To do this would require an adequate sanatorium and preventorium in every county. There is only one reason for the inadequate sanatoriums in this state, and that is the failure to appropriate enough money. This failure is due partly to a lack of appreciation of the need for sanatoriums and partly to the deterring fear of a rise in the tax rate. Sanatoriums without preventoriums will lead to an endless chain of expenditure with no hope of ultimately controlling the disease. The fact that tuberculous cows remain in our herds is not the fault of health boards, but is due to the injustice of the law which allows the dairyman but a nominal price for his slaughtered cow and takes from him the value resident in hide, hoofs, fat and meat if it is salable.

DISCUSSION

DR. HERBERT W. JOHNSON, Haddonfield: Dr. Louis I. Dublin published an article in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, May 27, 1916, in which he made an analysis of 1,153 cases of scarlet fever in reference to their sequelae. In this series there were ninety deaths, eleven of which showed distinct kidney involvement. Heart conditions were recorded in seven fatal cases. Of 1,063 cases in which the patient survived, it seemed that the mortality of the survivors as a group showed apparently no increase. It was of interest, however, to find that of eighteen deaths which occurred within four years, three showed a record of endocarditis. These cases might reflect the impairment caused by the scarlet fever. There were five deaths from respiratory diseases and four from tuberculosis. Apparently among the survivors of the primary disease, the kidneys were not sufficiently impaired to cause early death. It is quite possible, however, that ultimately there may be an increase in the expected number of deaths from kidney lesions, although such a consequence may not manifest itself until ten or more years have elapsed after the initial incidence of the scarlet fever. Communicable diseases cannot be controlled effectively until we have well trained, full time health officers and good nurses to assist these health officers. Parochial schools should have medical inspection just as the public schools have. The truant officer can be of great assistance in reporting communicable diseases. All communicable diseases should be quarantined as rigidly as smallpox; by such stringent measures they might be as effectively controlled.

DR. HENRY H. DAVIS, Camden: We want local boards of health to do better work, but the people do not want the tax rate raised. The problem is how to get the money. The people should be educated to demand that these diseases be controlled. When the community makes this demand, the money will be forthcoming.

DR. ALFRED F. HESS, New York: We now recognize that most of the ills of adult life are contracted in childhood and

infancy. Tuberculosis is one of the most important of these. I happen to be in charge of the first preventorium for infants in this country. This preventorium is located at Farmingdale, about 10 miles inland from Asbury Park. This institution accommodates from 180 to 200 children of tuberculous parents. We have been trying the experiment of taking the infants of tuberculous mothers before they have become infected. We have thus far taken twenty-five such babies, all giving negative von Pirquet reactions. Many of these babies were taken from mothers who were in tuberculosis sanatoriums. In about one half of our cases the mothers died within a year or so, and the children could then be returned to safe homes. In some instances the mothers were cured and it was safe to send the babies home. This is an important way to attack the tuberculosis problem.

DR. JULIUS LEVY, Newark: Real prevention will not come through preventoriums but through bettering living conditions. The effort to control tuberculosis by placing its victims in sanatoriums only presents the problem of constantly increasing accommodations in institutions. In my opinion the infant should be left with the tuberculous mother if she is able to nurse it and can be instructed as to how to protect the infant from infection. Breast fed babies are less liable to contract infections and possess a higher degree of resistance than bottle fed babies. Every child with an infectious disease, no matter how mild in form, should be kept in bed for a week.

DR. ALEXANDER MARCY, Riverton: Public health work is entirely different from the practice of medicine. If we want men to do efficient public health work they must be trained to do that work. In New Jersey, every health organization must have a licensed health officer, and the state health board provides for these examinations. Many of the men who have practiced medicine and take these examinations, judging from the results of the examination, know less about public health work than some men who have never studied medicine. A man who wants to do public health work should go to some institution and take a course in public health and sanitation, and graduate as he did in medicine. Our need is for trained sanitarians, trained health officers and trained medical inspectors. As to our medical men becoming organized and becoming a unit, if that could be realized it would be impossible for any body politic to stand before a united profession.

DR. LINN EMERSON, Orange: The opinion has been expressed that what is most needed to control tuberculosis is sanatoriums for advanced cases. Sanatoriums are conducted with the idea that the one thing to be considered is the percentage of cures, and if a patient is in the last stages and cannot be cured he is sent home in order to keep down the death rate in the institution. He then infects some one else in the home. In a couple of years this individual goes to the sanatorium and the same thing is repeated, and in the end the entire family is probably infected. All the money spent on preventoriums is as good as wasted so long as persons with communicable cases are turned loose on the community.

DR. HERMAN GROSS, Metuchen: Working conditions in factories are responsible for a great deal of tuberculosis. Both sanatoriums and preventoriums will fail to control tuberculosis so long as working and living conditions of the working people are not what they should be. I know of one factory where 50 per cent. of the women come down with tuberculosis three years after they begin work. More should be done to control the conditions under which employees work in factories.

DR. B. D. EVANS, Morris Plains: If anything practical is to be done we must begin with a campaign of education. People should be taught the dangers of measles, and the children in the public schools should be instructed in reference to these dangers just as they are now told of the dangers of alcohol, tobacco, smallpox and tuberculosis. If people are taught the gravity of the sequelae of communicable diseases, a public sentiment can be created, and when there is a request from state or local boards of health for money for the control of communicable diseases, it will be forthcoming. This society should be behind such a campaign of education.

DR. THOMAS N. GRAY, East Orange: I agree that the underlying problem is one of economics, but we must deal with conditions at the present time and as we cannot do anything to remedy economic conditions we must have sanatoriums and better isolation and better protection must be enforced by health boards. Tuberculosis is not contracted in the open air but is essentially a home disease. We should have sanatoriums in every county with sufficient accommodations to provide for every open case of tuberculosis, but sanatoriums without preventoriums will not stop the spread of tuberculosis.

Classification, Prognosis and Treatment in the Nephritides

DR. MARTIN H. FISCHER, Cincinnati: The effect of water and sodium chlorid in nephritis can be authoritatively settled only on the basis of the cause of the clinical entity called nephritis. We have found that a protein colloid in the presence of a weak acid solution absorbs water and swells up, and that the more acid which is added to the solution, the greater is the swelling; we have found, further, that when we neutralize the acid solution we get a shrinking of the protein colloid. Sodium chlorid has less activity in this respect than other salts. The most powerful salts are sodium tartrate, sodium citrate and sodium sulphate. Magnesium sulphate is many times more powerful than the same concentration of sodium or potassium. Tissues suffer changes accordingly as they hold more or less water, and the amount of water sucked up is determined by the cells themselves and not by something outside of the cells. Nephritis is an edema of the kidney, but it is also a composite of a number of chemical changes occurring in the whole or a part of the kidney. These changes are due to a common cause, namely, the abnormal accumulation of acids and other substances which act like acids. If with the abnormal accumulation of acids water is ingested, it is retained and edema results and we get a parenchymatous nephritis. After violent exercise that causes an abnormal accumulation of acid in the blood because the blood cannot oxidize the acid as fast as it is formed, we may also find albumin and casts in the urine, even as much as several grams to the liter. The same thing may occur in warm blooded animals exposed to the cold. The indication is, first, for the administration of alkali; second, for the administration of salt, not only in physiologic but in more than physiologic concentration; third, sugar should be given, since a high concentration of sugar also dehydrates; water should be given, but this is not an unmixed blessing, and there should be enough alkali and salt to counteract the effect of the water. The idea has been prevalent that to administer salt to the nephritic is to kill him. This is incorrect, and furthermore, sodium sulphate possesses advantages over sodium chlorid. There is only one form of nephritis, and that is the parenchymatous. There may be two varieties of parenchymatous nephritis, general and "spotty." The "spotty" type may be due to infections or the result of an anesthetic or the result of intoxication during pregnancy. In this type, if the patient is brought through the acute attack, the prognosis is good. In general parenchymatous nephritis the prognosis is much less favorable, as the kidney condition is dependent on arteriosclerosis and one is dealing with a necrosis which is irremovable and irremediable. When a patient with parenchymatous nephritis develops general edema, the idea has been that the edema is the result of a cessation of kidney function. This is incorrect, since the removal of the kidneys in animals does not produce edema. The edema is due to the same cause that produces the disease, to a general toxemia affecting all the tissues, including the cells of the kidneys. The symptoms which have been attributed to kidney disease are the signs and symptoms of edema of the brain. The headache of so-called uremia tells you that the brain is swollen to the danger point. It is not true that high blood pressure is a consequence of kidney disease; high blood pressure is dependent on the cardiovascular system and is a compensatory mechanism.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, LXXIV, No. 1, pp. 1-176

1 Surgical Replacement of Retroposed Uterus. D. Bissell, New York.
2 *Case of Carcinoma Uteri Treated According to Percy Method, With Necropsy Findings. F. W. Bancroft, New York.
3 Significance of Syphilis in Obstetrics. W. D. Fullerton, Cleveland.
4 Vaginal Supravaginal Hysterectomy. A. Reich, New York.
5 Acidosis Complicating Pregnancy; Report of Case Cured by Transfusion. A. H. Ely and E. Lindeman, New York.
6 Three Cases of Labor Following Ventral Suspension. W. E. Caldwell, New York.
7 Training in Obstetrics That State Should Demand Before Licensing Physician to Practice. B. C. Hirst, Philadelphia.
8 Treatment of Eclampsia. N. L. Knipe and J. Donnelly, Philadelphia.
9 Teaching of Gynecology to Advanced Pupil. A. Sturmdorf, New York.
10 Transperitoneal Celiohysterotomy. J. O. Polak, Brooklyn.
11 Exercise on All Four as Means of Preventing Subinvolution and Retroversion. A. C. Beck, Brooklyn.
12 Dysmenorrhea. J. W. Kennedy, Philadelphia.

2. **Heat in Carcinoma Uteri.**—Bancroft's patient died with symptoms pointing toward a severe toxemia, and as the necropsy revealed no lesions due to error in technic, the cause of death is attributed to the operation. The main facts concerning the findings from the microscopic examination are summarized as follows: Certain islands of cancer cells show advanced degenerative changes, reaching in many instances stages of necrosis and dissolution. Others show milder grades of degeneration, and still others have apparently not been affected by the treatment. The latter cells have all the appearances of viable carcinomatous structures. The intervening structures (the musculature and connective tissue surrounding the island of cancer cells), have not wholly escaped injury.

American Journal of Orthopedic Surgery, Boston

July, XIV, No. 7, pp. 381-442

13 *Operative Treatment of Infantile Paralysis. M. H. Rogers, Boston.
14 Methods of Stabilizing Flail Foot in Infantile Paralysis. E. W. Ryerson, Chicago.
15 Stability of Lower Extremity in Paralytics. G. G. Davis, Philadelphia.
16 *Operative Treatment of Infantile Paralysis. R. T. Taylor, Baltimore.
17 Operative Treatment for Disabilities and Deformities Following Anterior Poliomyelitis. C. Wallace, New York.
18 Spring Balance Muscle Test. R. W. Lovett and E. G. Martin, Boston.

13. **Operative Treatment of Infantile Paralysis.**—Rogers says that it is better to do as small an amount of operating as possible in children, as long as there is no development of deformities. The various methods have proved of value, the matter of chief importance being a careful study of the needs of the individual case. In adults, the results of tendon transplantation, alone or combined with resection of portions of the bony structure, have given good results. The Forbes operation, in the author's opinion, is of definite value. Astragalectomy has given better results than arthrodesis of the ankle joint in those cases which present very marked deformity.

16. **Operative Treatment of Infantile Paralysis.**—The various procedures which have been suggested for the relief of paralytic deformities are discussed by Taylor. He says: Tenotomy, justifiable if a tendon transplantation or transference cannot be done, which will restore the loss of balance of power, and if a brace is worn for a sufficient period to prevent recontraction, plus massage, stretching and muscle training of the antagonistic group or groups faithfully employed. Of myotomy the same may be said. Tendon shortening has been tried and found wanting. Tendon lengthening is making the simple operation of tenotomy into more of an operation, without any commensurate gain. Tenodesis is justifiable only when the parent muscle has so far undergone fatty and fibrous degeneration that no possible functional use can be hoped for from it, if its tendon is transplanted to some other ataxic region. Extra-articular and intra-articular silk ligaments are chiefly indicated in flail joints in which impotent tendons are not to be had for tenodesis.

Arthrodesis is not to be recommended except for flail ankle joints in adolescents and adults. Articular transposition for calcaneus destroys no joint, throws the weight forward on the os calcis and corrects the deformity without mutilation, but with no increase in power of extension of the foot on the leg unless accompanied by appropriate tendon transplantations into the heel. Marked distortions in the long bones, such as knock-knees and bow legs must be corrected before tendon transference is done. Removal of portions of small bones of the foot in paralyzed children is unnecessary and may dwarf development. "Nerve anastomosis" and the "neurotization of muscles" have not shown anything really practical yet. The sheet anchor in the majority of partially paralyzed cases is to be found in tendon transplantation if the case is scientifically studied, and certain fundamental principles are carried out.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, XXV, No. 1, pp. 1-250

19 Diagnosis of Otitic Cerebellar Abscess. A. Braun, New York.
20 Some Reminiscences, Reflections and Confessions of Laryngologist. J. N. Mackenzie, Baltimore.
21 Etiology and Pathology of Otitic Cerebellar Abscess. I. Friesner, New York.
22 Tuberculosis of Middle Ear. H. B. Graham, San Francisco.
23 Bilateral Peripheral Paralysis of Musculi Cricoarytenoidei Postici. H. E. Miller, St. Louis.
24 Correlated Action of Pharynx and Soft Palate, and Its Effects on Postnasal Diagnosis. G. Sluder, St. Louis.
25 Treatment of Hemorrhage With Normal Blood Serum. H. H. Forbes, New York.
26 Simulation of Paranasal Suppurations for Teaching Purposes. G. Sluder, St. Louis.
27 Closure of Postaural Opening Following Schwartze-Stacke Operation by Modification of Mosetig-Moorhof Method. H. B. Blackwell, New York.

Annals of Surgery, Philadelphia

July, LXIV, No. 1, pp. 1-128

28 *Branchiogenic Carcinoma. F. Warner, Columbus.
29 *Therapeutics of Chronic Nontuberculous Suppurative Bronchiectasis. H. Lilienthal, New York.
30 *Handling of Children *With Tuberculosis of Spine While They Are Under Influence of Anesthetic. W. G. Elmer, Philadelphia.
31 Element of Error in Abdominal Diagnosis. H. L. Foss, Danville.
32 Surgery of Gallbladder. C. U. Collins and G. H. Weber, Peoria, Ill.
33 Cysts of Urachus; Report of Case. J. W. Means, Columbus.
34 *Transplantable Chondro-Osteosarcoma in Dog. J. E. McWhorter and F. Prime, Jr., New York.
35 Traction Bandage for Reduction of Fracture of Leg. H. D. Collins, New York.
36 Sliding Graft and Kangaroo Suture in Fresh Fractures; Albee Technic. W. Lathrop, Hazleton.
37 Fractures of Femur. W. L. Estes, South Bethlehem.

28. **Branchiogenic Carcinoma.**—A case of epidermoid carcinoma, seemingly taking its origin from epithelial embryonic inclusions of the second gill cleft is cited by Warner. The tumor was removed. It showed microscopic evidence of very rapid growth, in that the epithelium presented many mitotic figures, and the cancer cells having very little supporting connective tissue. It reoccurred within three weeks, and another surgeon operated less than three months after the first operation, and a little over three months since the first manifestation of the disease. He died on the operating table. No secondary manifestations had declared themselves. No postmortem was obtained. Warner says that any hard swelling in the region of the branchiogenic clefts should immediately arouse suspicion of branchiogenic carcinoma, especially if associated with pain as a prominent symptom.

29. **Therapeutics of Suppurative Bronchiectasis.**—After an experience with twenty-six cases since 1910, Lilienthal is convinced that palliative treatment should be reserved for actually hopeless cases, such as those of bilateral involvement or those in which the condition in one lung is so

extensive and complicated by adhesions that extirpation is clearly impossible. A single focus, or multiple foci in one lobe, should be removed surgically. Even when an abscess has extended so as to implicate neighboring lobes in one single infected mass, extirpation may be performed successfully. Lilienthal reports seven cases in which extirpation was performed or attempted. Of the six cases in which the operation could be completed there were four cures. One patient, whose case was badly chosen for extirpation, died as the result of an exploratory operation.

30. **Tuberculosis of Spine.**—Elmer cautions against careless and unnecessary manipulation of the child. He says that a child suffering with tuberculosis of the spine, and while conscious and in full control of its voluntary muscles, is a very different object from the one which lies unconscious and relaxed under an anesthetic. The power of voluntary control and self-protection is entirely lost under an anesthetic. The spine sags and bends when the child is lifted, and torsion at one end of the spinal column is carried segment by segment the length of the spine, one vertebra rotating on the next one, to the limit of motion, and so on down. There is another factor to be considered. The intimate relationship of the great, the lesser and the smallest splanchnic nerves to the thoracic vertebrae is important. Stretching and tearing of these delicate nerve structures so close to the spinal axis may produce sudden and severe shock. Likewise compression or pinching of the nerve tissue may produce shock. Elmer cites cases and describes his method of procedure of avoiding such traumas. At the time of the operation the child is placed supine on the table, the front of the plaster jacket is then removed and the anesthetic started. A few minutes later the front of the jacket is replaced and held firmly in place by two assistants, while the child is turned over into the prone position. The back of the plaster jacket is removed, the operation performed on the spine, a light gauze dressing put on, and the back of the jacket with its cotton replaced, fastened firmly with girdles of adhesive plaster, and the child returned to its bed. In this way all twisting and unnecessary movements of the spine are avoided.

34. **Transplantable Chondro-Osteosarcoma in Dog.**—McWhorter and Prime record the successful transplantation, through three generations, of a mammary chondro-osteosarcoma of a dog, in which development of bone was observed in the first generation of transplants. By far the most successful growths took place in very young puppies and particularly in those of nearly the same breed as that in which the original tumor grew. The tumor showing bone as found in the puppies of the first generation more nearly resembled the original tumor than did the growths in adult dogs.

Archives of Internal Medicine, Chicago

July, XVIII, No. 1, pp. 1-136

38 Introduction to Third Report of Robert M. Thompson Pellagra Commission of New York Post-Graduate Medical School and Hospital. J. F. Siler, U. S. Army; P. E. Garrison, U. S. Navy, and W. J. MacNeal, New York.
39 *Hereditary Factor in Pellagra. C. B. Davenport, Long Island, N. Y.
40 *Hereditary Pellagra in Spartanburg County, S. C. E. B. Muncey, Long Island, N. Y.
41 *Studies in Cerebral Fat Embolism. H. Gauss, Chicago.
42 *Systemic Blastomycosis; Report of Five Cases. H. W. Wade and G. S. Bel, New Orleans.
43 *Metabolism Studies Before and After Splenectomy in Case of Pernicious Anemia. O. H. P. Pepper and J. H. Austin, Philadelphia.

39. **Hereditary Factor in Pellagra.**—While pellagra is not an inheritable disease in the sense in which brown eye color is inheritable, the course of the disease, according to Davenport, depends on certain constitutional, inheritable traits of the affected individual. When both parents are susceptible to the disease, at least 40 per cent., probably not far from 50 per cent., of their children are susceptible; an enormous rate of incidence in a disease that affects less than 1 per cent. of the population on the average. While the high incidence is doubtless due to infection, it is also doubtless due to susceptibility, for right among the affected children grow up brothers and sisters who have never shown the symptoms of pellagra. The importance of the constitutional factors is evinced by the difference in the reactions to the toxin of the disease shown by different families. Many families never show mental symptoms, while others usually do. In some families the intestinal symptoms are slight or negligible; in others severe and associated with early death. In some families the skin eruptions amount to little; other families are characterized by severe ulceration and desquamation of the derma. These family differences have all the characteristics of biotypes or blood lines and, Davenport believes, afford the best proof that there is a hereditary factor in pellagra.

40. **Hereditary Pellagra in South Carolina.**—An analysis of the data collected by Muncey shows no evidence of direct heredity. There may, however, be a hereditary predisposition to the disease in those families in which chronic gastro-intestinal symptoms have existed for several generations. The relatively high proportion of gastric and intestinal diseases among pellagrous families would seem to substantiate this hypothesis. Of 105 families in which there is only one case of pellagra, only three give history of intestinal or skin diseases in the ancestors, and only one gives history of antecedent insanity. With this predisposition to the disease, Muncey suggests that direct contact or life in endemic sections might be the exciting factor necessary for its development.

41. **Studies in Cerebral Fat Embolism.**—In view of the profound disturbance in the central nervous system produced by the secondary changes of fat embolism, Gauss says, it is reasonably safe to conclude that these multiple lesions are intimately associated with the clinical manifestations of delirium and coma. The author made a very careful study of the brain of one such case. His findings are cited.

42. **Systemic Blastomycosis.**—Several features were noted by Wade and Bel which are unusual to generalized blastomycosis from the pathologic point of view. In one case there were extensive lesions of the spleen and liver, apparently due to the blastomyces, in which very few yeast cells could be found. In a second case there was an apparent secondary invasion by the blastomyces of a pellagrin suffering from pulmonary tuberculosis. In the skin lesion very interesting minute forms were found and specially studied. In a third case the heart was extensively involved, the condition being apparently unique. Widespread secondary bacterial invasion was noted in the liver, brain and bones. In a fourth case there was involvement of the lungs, liver, kidneys and lymph nodes, cutaneous and subcutaneous. In the fifth case the lungs, ribs, vertebrae and spinal cord were involved with cutaneous and subcutaneous nodules.

43. **Metabolism Studies in Case of Pernicious Anemia.**—In an adult with pernicious anemia of a moderately hemolytic type, splenectomy was followed by disappearance of the discoloration of the skin and by prompt and persistent improvement in the condition of the blood and general health. Metabolism studies made by Pepper and Austin before and after splenectomy gave the following results: A slight positive nitrogen balance before splenectomy was followed by an increased nitrogen retention fourteen days after operation and a return to the preoperative balance after one month. The output of uric acid, although never exceeding normal limits, showed a decrease of 22 per cent. after operation. The output of iron through the feces, although never above normal, showed a decrease of 40 per cent. after operation. The excretion of urobilinogen and urobilin in the feces before splenectomy was about three times the normal; two months after operation the output was about one seventh of that before splenectomy.

Archives of Ophthalmology, New Rochelle, N. Y.

July, XLV, No. 4, pp. 397-405

44 Some Newer Principles in Dealing With Uncomplicated Cataract. D. T. Vail, Cincinnati.
45 Studies on Action of Toxins and Protein Degeneration Products on Eye. A. C. Woods, Philadelphia, and J. L. Stoddard, Boston.
46 Three Years' Experience in Sclerocorneal Trephining in Glaucoma. W. H. Wilmer, Washington, D. C.
47 Report of Cases of Quinin Amblyopia. J. E. Weeks, New York.

48 Case of Syphilitic Retinochoroiditis Juxtapapillaris, With Microscopic Examination. F. H. Verhoeff, Boston.
49 Operative Treatment of Partial Staphyloma of Cornea and of Fistula of Cornea With Conjunctival Flap, Conjunctivo-Keratoplasty (Kuhnt). A. Knapp, New York.

Boston Medical and Surgical Journal

July 13, CLXXV, No. 2, pp. 35-70

50 Certain Occupations as Contributing Factors to Diseases of Skin. C. J. White, Boston.
51 Leonardo Da Vinci's Scientific Research of Vascular System. A. C. Klebs, Washington, D. C.
52 Hematocele of Tunica Vaginalis; Report of Cases. C. M. Whitney, Boston.
53 *Statistical Study of Mortality From Diabetes Mellitus in Boston From 1895 to 1913, With Special Reference to Its Occurrence Among Jews. H. Morrison, Boston.
54 Treatment of Chronic Disease is Problem of Applied Physiology. F. H. McCrudden, Boston.
55 *Acute Arthritis Experimentally Produced by Intravenous Injection of Staphylococcus Pyogenes. E. C. Steinharter, Cincinnati.

53. **Study of Mortality from Diabetes Mellitus.**—Morrison's investigation covers a period of nineteen years, during which there were reported 1,775 deaths due to diabetes mellitus. Of these, 127 were among Jews out of a total of 6,936 deaths from all causes, and 1,648 were among non Jews out of a total of 222,532 deaths. The ratio of the number of deaths due to this disease to the total number of deaths from all causes is 0.018 among Jews and 0.007 among non Jews. The largest number of deaths from diabetes occurred among those of Irish parentage, 656 out of 1,775, or more than one-third of the total. There were only eleven deaths from diabetes among negroes in Boston from 1895 to 1913. In Boston, as elsewhere, there has been a steady rise in the death rate from this disease; it was 7.1 per 100,000 inhabitants in 1895 and 21.3 in 1913, or 3.1 per 1,000 total deaths in 1895, and 13.3 in 1913.

55. **Acute Arthritis Produced by Injection of Staphylococcus Pyogenes.**—The results shown by Steinharter's work indicate that the staphylococcus is apt to localize in the joints and to produce typical lesions of arthritis, if the strain is of proper virulence. The organism recovered from the arthritic lesions has a decided tendency to again localize in joints. In some cases the arthritis was the only lesion found at necropsy, but in other cases it was associated with one or more other lesions, namely, duodenal ulcer, appendicitis, cholecystitis, myocarditis, pericarditis, endocarditis, nephritis, colitis and myositis. According to these experiments, it seems to be true that while the organism used (a staphylococcus) may show a predilection for a particular region of the body, it will not always produce a gross lesion at the expected point of attack. In order to produce a gross lesion, it is necessary either for the staphylococcus to be of a certain grade of virulence, or for the tissue in which it has lodged to be suitably altered for the growth and action of the organism. This principle demonstrated itself repeatedly in the course of experimental production of gastric ulcer, and again in experimental production of acute arthritis.

California State Journal of Medicine, San Francisco

July, XIV, No. 7, pp. 259-304

56 Second Thoughts About Salvarsan Therapy. W. E. Stevens, San Francisco.
57 Chronic Appendicitis Complicating Pulmonary Tuberculosis. J. C. King, Banning.
58 Syphilis of Central Nervous System. T. G. Inman, San Francisco.
59 Routes of Infection in Tuberculosis. W. Ophuls, San Francisco.
60 *Statistical Study of Rabies in California. J. C. Geiger, Berkeley.
61 Danger of Baths in Patients Suffering From Arteriosclerosis. W. W. Kerr, San Francisco.
62 *Tuberculin Therapy: Its Principles, Limitations and Indications. W. C. Klotz, Los Angeles.
63 *Simple Treatment of Fracture of Inferior Maxilla. E. Butler, San Francisco.
64 Fracture of Base of Skull Presentation of Patient. P. R. Walters, Dinuba.
65 Roentgen Treatment of Goiter. H. E. Ruggles, San Francisco.
66 Conservative Treatment of Fractures of Long Bones and of Wounds Complicating Them. J. T. Watkins, San Francisco.

60. **Rabies in California.**—Beginning April 1, 1913, and ending March 31, 1914, 427 examinations of the brains of animals for rabies have been made in the state laboratory. Of these specimens, nine were in such a state of decomposition as to make examination impossible. Seventy brains gave negative results and 348 were found positive. Three hundred and thirty-nine of the positive cases were diagnosed by the finding of Negri bodies and the balance by inoculation into rabbits and guinea-pigs. The animals affected were as follows: 317 dogs, fourteen cows, eleven cats, four horses, one goat, one coyote.

Four hundred and thirty-six persons were treated with virus. The infection came from the bites of dogs in 403 instances, in nine cases from the bites of cats, and in four cases from the bites of coyotes. Six people were exposed to rabid cows and three to horses. Nine persons took the treatment as a precaution against exposure while doing laboratory examinations for rabies. The two remaining cases were inoculated with virus from human cases, one because of a bite and one because the saliva contaminated a fresh open burn.

Of the cases of rabies in human beings, three were true failures of the Pasteur treatment, all being severely bitten, two near the central nervous system. Eliminating all persons treated who were not bitten, the percentage of failures with virus supplied by this bureau was 0.491, less than ½ of 1 per cent. These statistics are extremely important and unique because of the fact that in over 98 per cent. of the persons bitten, the animals doing the biting were checked by laboratory examinations, with positive results. There were few ill effects following the Pasteur treatment during the period under consideration. In one patient some weeks after treatment there was a peculiar twitching of the muscles of the right side of the neck. In another patient eleven days following the completion of the treatment there was severe pains in the left eye, later affecting the side of the face. This was present at intervals for about a week. In one of the patients there was vomiting. This occurred every day for a short period of time and stopped after the completion of the Pasteur treatment. In another patient the local reactions that usually appear on certain days of the treatment from different strength virus occurred after each injection. In four instances subcutaneous abscesses developed. The only serious complication reported was a slight paralysis of the lower limbs, with prodromal symptoms of nausea and diarrhea, which occurred several days after the completion of the Pasteur treatment.

62. **Tuberculin Therapy.**—Klotz emphasizes some very important points: He says that the basis for indications and contraindications for tuberculin therapy is an estimation of the degree of reactivity of the tissues at the site of tuberculous lesions. This can be determined only by a careful clinical study of each case. The principal object of tuberculin therapy is to establish tuberculin tolerance. Tuberculin tolerance is not permanent and the protection offered by it is limited. The various biologic tests are too variable to serve as safe guides for dosage in tuberculin therapy. The dosage in tuberculin therapy is not and cannot be absolute, but must be determined for each individual case, according to the clinical picture. Different preparations of tuberculin differ only as to their tuberculin content.

63. **Treatment of Fracture of Inferior Maxilla.**—Butler recommends the simple wiring of teeth of the inferior maxilla to corresponding teeth of the superior maxilla as a practical, efficient procedure which is easy of application and requires no special instruments or training. He says that it is suitable in practically all cases in which the teeth are present. Anesthesia is not as a rule required. External dressings are unnecessary. Any pliable tenacious wire of appropriate size may be used (iron, copper, bronze or silver). Angle's bands are often used by dentists, but are not as easily applied as wire. The corresponding teeth of three corresponding positions at least should be included.

Kentucky Medical Journal, Bowling Green

July, XIV, No. 7, pp. 355-400

67 Uremia. H. K. Orsburn, Owensboro.
68 Abdominal Pain. O. E. Bloch, Louisville.
69 Some of Uses and Abuses of Obstetric Forceps. I. J. Hoover, Owensboro.

70 Report of Carcinomas of Breast With Metastasis to Liver. A. J. Davidson, Lakeland.
71 Some Cardiovascular Stimulants and Their Uses. F. C. Askenstedt, Louisville.
72 Anuria. J. M. Morris, Louisville.
73 Management of Normal Labor. N. M. Garrett, Frankfort.
74 Pyorrhea and Its Relation to Systemic Disturbances. B. P. Rivers, Jr., Louisville.
75 Remote Infections Which Have Their Origin in Mouth. R. H. Davis, Louisville.
76 Dental Malocclusion. H. B. Tileston, Louisville.
77 Intravenous Use of Radium in High Blood Pressure. R. R. Elmore, Louisville.
78 Analysis of Anaphylactic Reaction. V. E. Simpson, Louisville.

Maine Medical Association Journal, Portland

June, VI, No. 11, pp. 389-420

79 Allen Treatment of Diabetes. H. V. Bickmore, Portland.

Michigan State Medical Society Journal, Grand Rapids

July, XV, No. 7, pp. 327-364

80 Toxemias in Pregnancy. F. C. Goldsborough, Buffalo.
81 Treatment of Fractures and Joint Injuries. W. T. Dodge, Big Rapids.
82 Treatment of Burns. C. N. Sowers, Benton Harbor.
83 Urinary Diagnosis of Pregnancy. H. A. Sharpe, L'Anse.
84 Ocular Evidences of Vicarious Menstruation. J. E. Gleason, Detroit.
85 Dermoid Cyst of Spermatic Cord. R. E. Fox, Ancon, C. Z.

New Jersey Medical Society Journal, Orange

July, XIII, No. 7, pp. 339-394

86 Treatment of Diabetes Mellitus. H. O. Mosenthal, Baltimore.
87 Hodgkin's Disease. I. Markowitz, Jersey City.

New York Medical Journal

July 8, CIV, No. 2, pp. 49-96

88 Exophthalmic Goiter. W. H. B. Aikins, Toronto, Ont.
89 Vaginal Hysterectomy. J. C. Taylor, New York.
90 Radium. S. Tousey, New York.
91 *Syphilitic Aortic Disease. G. W. McCaskey, Fort Wayne, Ind.
92 Transmissible Diseases in War. P. W. Huntington, New York.
93 Syncope Immediately After Administration of Diarsenol. S. H. Likes and H. Schoenrich, Baltimore.
94 Chronic Interstitial Nephritis. F. E. Park, Stoneham, Mass.
95 Trustworthy Nonpoisonous Antiseptic (Calendula Officinalis). W. M. Gregory, Berea, Ohio.

91. **Syphilitic Aortic Disease.**—A case with an anomalous electrocardiogram suggesting ventricular asynchronism is reported by McCaskey. A woman, aged 33 years, complained of paroxysmal pain in upper left chest and dyspnea. She had had acute articular rheumatism when 13 years of age. Eleven years later (nine years ago) she began to have some symptoms of heart disorder. The attacks were severe, lasting an hour or longer. She had a marked Corrigan and distinct capillary pulse. Temperature 99.2 F., pulse 100. Blood pressure (auscultatory method) systolic 170, diastolic 60 mm. Hg. Pulse pressure 110; at subsequent examination, systolic 160, diastolic 50. Heart: Left border 3 cm. to left of midclavicular line. Auscultation showed double aortic bruits, not very loud. No arrhythmia. Otherwise normal. No reduplication of either first or second sound could be detected at any time. The patient was placed on mercury and iodids. She objected to the pain of intramuscular injections, which were followed by protiodid of mercury in doses as large as could be tolerated, about one quarter to one half grain three times a day. After about three months' treatment the symptoms are very much improved, although there are still occasional attacks. The physical signs are changed. The diagnosis made by McCaskey is syphilis of the heart and aorta, with evident involvement of the aortic valves.

Northwest Medicine, Seattle

July, XV, No. 7, pp. 217-248

96 Clinical Consideration and Classification of Diarrhea and Constipation. F. Epplen, Spokane.
97 Nerve Blocking as Practical Method of Anesthesia for Abdominal Operations. E. O. Jones, Seattle.
98 Surgical Consideration of Uterine Prolapse. J. A. Pettit, Portland, Ore.
99 Treatment of Uterine Hemorrhage. H. P. Marshall, Spokane.
100 Some Points of Interest in Cerebral Localization to General Practitioner. J. T. Mason, Seattle.
101 Rational Treatment of Tuberculosis. A. M. Kinney, Astoria, Ore.
102 Treatment of Abscesses in Course of Tuberculous Disease of Joints and Bones. E. A. Rich, Tacoma.
103 Governmental Control of Medicine and Prevention of Quackery. E. L. White, Lewiston, Ida.
104 Case of Obstruction of Superior Vena Cava Due to Aneurysm of Arch of Aorta. R. L. Waugh, Seattle.

Oklahoma State Medical Association Journal, Muskogee

July, IX, No. 7, pp. 185-223

105 Early Diagnosis of Pulmonary Tuberculosis. W. W. Rucks, Guthrie.
106 Tuberculosis. H. Reed, Oklahoma City.
107 Layman's Views on Tuberculosis. E. K. Gaylord, Oklahoma City.
108 Inspiration From Chapter in History of Tuberculosis. L. J. Moorman, Oklahoma City.
109 Rôle of Heredity in Cause and Treatment of Disease. C. W. Heitzman, Muskogee.
110 *Case of Nephrectomy During Pregnancy; Report of Case. F. Y. Cronk, Guthrie.

110. **Nephrectomy During Pregnancy.**—Cronk cites the case of a woman, aged 27 years. Ten days before he saw her she experienced an acute sudden pain in the right flank just under lower border of the ribs. It was controlled by morphin. The fever ranged from 99 to 105 degrees. Urine was dark red and cloudy at first; then became light color with heavy white sediment. Blood pressure normal. Abdomen full, not rigid. Tenderness and rigidity in the left upper quadrant, extending around to the costal margin in front. A mass, smooth, tender on pressure, suggests the lower pole on the right kidney. Operation disclosed a large right kidney, 2½ by 3 by 6½ inches, firm and very adherent. Nephrectomy was done and wound closed with small tube drainage. On section of kidney, longitudinally, the pelvis is large (signs of distention) and two pockets, only slightly roughened, containing about 1 c.c. each of pus and a few shreds of necrotic material (strings of pus cells). Cortex red and swollen.

Ophthalmic Record, Chicago

July, XXV, No. 7, pp. 325-378

111 Mode of Extracting Lens in Its Capsule. E. E. Maddox, England.
112 Congenital Coloboma of Lens. W. B. Weidler, New York.
113 Rare Tubercular Condition of Eye. H. R. Wright, Columbus, Ohio.
114 Palpebral Syphilis. J. Rosenbaum, Montreal.
115 Method of Operation in Extensive Symblepharon. F. Krauss, Philadelphia.
116 Biologic Theory of Sympathetic Ophthalmia. H. Gifford, Omaha.
117 Nonoperative Treatment of Incipient Cataract. E. J. Bissell, Rochester, N. Y.
118 Foreign Body Lodged, for Years in Superficial Layers of Eyeball; Report of Case. F. R. Spencer, Boulder, Colo.
119 Eye Speculum for Cataract Operation. W. H. Wilder, Chicago.
120 Case of Palsy of External Rectus Muscle with Operation. C. M. Harris, Johnstown, Pa.

Providence Medical Journal

July, XVII, No. 4, pp. 174-224

121 Some Random Thoughts on Law and Medicine. A. D. Hill, Boston.
122 Anesthetics of Future. A. H. Miller, Providence.
123 Nitrous Oxid Anesthesia and Analgesia in Obstetrics. P. P. Chase, Providence.
124 Report on Two Thousand Wassermann Tests Made at Providence City Hospital During Years 1914 and 1915, with Study of Comparative Value of Antigens Used. H. E. Smiley, Providence.
125 Report on Result of Antisyphilitic Treatment at City Hospital. H. P. B. Jordan, Providence.

Southern Medical Journal, Birmingham, Ala.

July, IX, No. 7, pp. 579-668

126 Dosage of Digitalis. J. T. Halsey, New Orleans.
127 *Influence of Injection of Blood on Anemia and Infections in Children. J. S. Davis, Dallas, Texas.
128 Common Sense and Fever Thermometer vs. Stethoscope and Microscope in Diagnosis of Early Pulmonary Tuberculosis. S. E. Thompson, Carlsbad, Texas.
129 Rest and Exercise in Tuberculosis. T. Frazer, Asheville, N. C.
130 Bronchial Gland Tuberculosis. M. E. Lapham, Highlands, N. C.
131 Recognition and Treatment of Occult Tuberculosis. S. Von Ruck, Asheville, N. C.
132 *Health Conservation Through Life Insurance Companies. J. L. Davis, Waco, Texas.
133 What Life Insurance Companies Can Do for Betterment of Public Health. M. M. Smith, Dallas, Texas.
134 Relation of Insurance Medicine and Periodical Health Tests to General Practice. W. O. Pauli, Cincinnati.

135 *Hay-Fever in Southern States. W. Scheppegrell, New Orleans.
136 Treatment of Urethral Stricture with Special Reference to Retrograde Dilatation. G. L. Hunner, Baltimore.
137 Treatment of Scoliosis. E. S. Hatch, New Orleans.
138 Acute Infections of Kidney. J. Hume and S. Logan, New Orleans.
139 First Aid Package. R. W. Knox, Houston, Texas.
140 First Aid to Injured. D. Eve, Nashville, Tenn.
141 Treatment of Compound Fractures. S. Leigh, Norfolk, Va.
142 Primary Treatment of Accidental Wounds. J. C. Bloodgood, Baltimore.
143 Syphilis of Eye, Ear, Nose and Throat. S. Kirkpatrick, Selma.
144 Injection of Ganglion of Gasser Through Foramen Ovale. H. H. Martin, Savannah, Ga.
145 Case of Dermoid of Corneoscleral Margin. A. O. Pfingst, Louisville, Ky.

127 and 132. Abstracted in THE JOURNAL, Dec. 11, 1915, pp. 2118 and 2119.

135. **Hay-Fever in Southern States.**—As no form of treatment has given satisfactory results in hay-fever, Scheppegrell says, especial attention should be given to its prevention. This is simplified by the fact that practically all the plants that cause hay-fever are worthless weeds, already a source of expense to the farmer. As the elimination of these weeds means the eradication of hay-fever, every effort should be made to exterminate them. When this has been done, it will result in the proportionate decrease of hay-fever cases. When the public is thoroughly educated in the causative relation of these weeds to hay-fever, and suitable laws are enacted and enforced to assist in their extermination, hay-fever will cease to be on the list of common diseases.

West Virginia Medical Journal, Huntington

July, XI, No. 1, pp. 1-36

146 Acute Surgical Lesions of Abdomen Complicating Pregnancy. C. R. Ogden, Clarksburg.
147 Position of Placenta in Utero. H. G. Steele, Bluefield.
148 Fracture Dislocations of Spine. B. B. Wheeler, McKendree.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 24, I, No. 2895, pp. 873-904

1 Right Side of Heart and Its Relation to Overstrain. W. Russell.
2 *Theory of Blood Pressure Measurement. L. Hill and J. M. McQueen.
3 *Systolic Pressure in Acute Nephritis. R. G. Abercrombie.
4 Congenital Cystic Kidney with Local Diffuse Peritonitis; Surgical Destruction of Part of Kidney; Recovery. J. D. Malcolm.
5 *Prevention of Amebic Dysentery. J. G. Thomson and D. Thomson.
6 *Causation and Cure of Certain Forms of Lunacy. R. Farrant.
7 Treatment of Backward Displacements of Uterus. (To be continued.) F. J. McCann.

2. **Theory of Blood Pressure Measurement.**—The authors point out that to give accurate information on the factors concerned in blood pressure measurement, a scheme must permit of compression being applied to an artery in a pulsable and not rigid manner, and a rise of peripheral resistance *pari passu* with increasing compression must be arranged for. When an armlet or bag of a pocket sphygmometer is made to compress an artery where it lies on bone with little tissue round it—for example, temporal, dorsalis pedis, aberrant radial—it deforms the artery and prevents the passage of the pulse at a pressure less than diastolic. The finger of the physician acts in the same way, and therefore cannot estimate the systolic pressure accurately. Compression of the tissues surrounding the artery so as to block the venous outlets is essential to accurate blood pressure measurement. This congests the blood beneath and beyond the armlet or bag. The pulsing of the congested mass of tissues renders armlet or bag capable of delivering a circular compression to the artery, and one which yields to the pulse and prevents deformation of the artery until the systolic pressure is overtopped. Sufficient area of veins must be blocked if the blood pressure instrument is to be an accurate one, consequently the bag or armlet must be broad. The bag, together with the observer's hand, enclose the forearm, and so makes the bag a pocket instrument equivalent to the armlet. Failure to make the bag broad accounts for many inconsistencies in the literature of blood pressure measurement.

3. **Systolic Pressure in Acute Nephritis.**—Several hundred cases of nephritis occurring among soldiers have been examined by Abercrombie. In cases of average severity the pressure was usually raised for a period of from five to ten days after the patient's admission to the hospital; not infrequently, however, the elevation persisted for several weeks, so that the patients were transferred home with the pressure still high. During the early stages the systolic pressure usually ranged between 135 and 180 mm. Hg; exceptionally, and particularly in association with convulsions, it reached 200 or 210. The pressure was thus lower than that usually seen in chronic nephritis; indeed, a pressure of over 200 was found to be presumptive evidence that the disease was really of long standing. A striking feature was the wide diurnal variation which often occurred between the morning and evening blood pressures, as much as 60 mm. Hg. When the blood pressure was falling from day to day, it usually did so in a series of morning remissions and evening rises, thus forming a descending "staircase." Exceptionally, when the pressure fell unusually rapidly, the evening pressure was lower than that recorded on the preceding morning; such a chart may be compared to that of a case of pneumonia terminating by crisis. During the early phase of the disease the pressure rises and falls irregularly; a stage is then reached of morning, remissions and evening rises forming a descending "staircase"; subsequently the pressure becomes subnormal, rising later to the normal.

In association with uremic convulsions [fourteen cases] the pressure was found to be always raised, but to a variable extent; in some cases it was 200, in others considerably lower; in one severe case the systolic pressure taken a few hours before the fit was 135. Immediately after the fit the pressure was often over 200, probably owing to the great muscular exertion. Two symptoms, usually nocturnal in incidence, appear to be specially associated with the great evening rises of pressure—namely paroxysmal dyspnea and headache. Usually the amount of albumin diminished *pari passu* with the fall in pressure, although residual albuminuria often persisted after the pressure had fallen to the normal. Sometimes, however, the two curves bore no relation to one another. During convalescence transient elevations in the blood pressure occasionally occurred; sometimes they followed an advance of diet, but often they formed a part of a general recrudescence of symptoms for which no cause could be assigned.

5. **Prevention of Amebic Dysentery.**—The Thomsons insist that all cases of suspected dysentery should receive at once 1 grain of emetin daily at the advanced dressing station, field ambulance, hospital ship, or base hospital. This treatment must not be stopped during the transit toward the base until at least 7 grains have been given. It is bad practice to omit one single dose. The 7 grains should be received in seven days. The usual sanitary and hygienic measures are also to be carried out.

6. See *The Lancet*, abstract No. 13.

Lancet, London

June 24, I, No. 4843, pp. 1245-1286

8 Injuries of Eye and Orbit. A. D. Griffith.
9 Diseases of Throat, Nose and Ear and Their Treatment in Hunter's Time. W. H. Kelson.
10 Removal of Adenoid Growths. J. L. Aymard.
11 Operative Treatment of Osteo-Arthritis. W. I. de C. Wheeler.
12 *Agglutination Reaction of Bacilli of Typhoid Dysentery Group with Normal Serum. T. R. Ritchie.
13 *Causation and Cure of Certain Lunacies. R. Farrant.
14 Three Interesting Cases of Gunshot Wounds. P. C. Woollatt.
15 Case of Edematous Laryngitis. A. Kidd.

12. **Agglutination Reaction with Normal Serum.**—Speaking of the *B. typhosus*, Ritchie says: (*a*) complete agglutination in a dilution of 1:16 should be looked on with considerable suspicion; (*b*) complete agglutination in a higher dilution (1:32 or above) should be looked on as diagnostic. *B. para-*

typhosus A and B. Complete agglutination in a dilution 1:16 is suspicious, and in 1:32 or higher may be looked on as diagnostic. *B. dysenteriae* (Shiga). Complete agglutination in a dilution of 1:64 and above should be regarded as diagnostic. *B. dysenteriae* (Flexner). Complete agglutination in a higher dilution than 1:128 should be looked on as diagnostic, but in a dilution of 1:128 or lower it cannot be relied on for diagnostic purposes. In the case of medical students, laboratory workers and the hospital class of the population, a larger percentage respond to the test in higher dilutions than do "normal" members of the population.

13. **Causation and Cure of Certain Lunacies.**—Farrant made a microscopic examination of sections taken from the pineal, pituitary, thyroid and sexual glands, first, at different ages and periods of life; second, the effect induced in these glands by acute and chronic toxemias; and third, the changes found in cases of lunacy. Clinical examinations were carried out of cases exhibiting signs of enlargement or atrophy of these glands and symptoms of excess or diminution of secretion. Similar examinations have been made on all classes of lunacy for the presence of signs and symptoms. Mental cases and others have been examined for the presence of toxemias inducing the alteration in the glands and the consequent induction of symptoms of excess and deficiency. Bacteriologic examinations have been made of the feces of lunatics and the colons examined postmortem. From some 3,000 sections it was found that these glands vary at different ages and periods of life; with advance of life they tend to atrophy; that the pineal reacts to certain toxemias, the ultimate result of which is fibrosis. The pituitary reacts in a similar manner, the terminal result of which is fibrosis, intermediate stages of hyperactivity are seen and the formation of cysts and adenomas.

In primary and secondary amentia atrophy of the pineal, pituitary and thyroid were found in three main groups of cases. In dementia praecox an alteration was found in the glands which varied with the duration of the case. Alteration and degeneration were also found in other cases of dementia. In some cases of acute confusional mania, melancholia, manicodepressive and other forms of insanity changes were found in the thyroid, pituitary and sexual glands. The changes varied from hypertrophy to atrophy. The thyroid gland was frequently found to be abnormal in children, adolescents and adult lunatics. The pituitary gland was found sometimes to have given rise to symptoms of hyperpituitarism, to apituitarism in idiocy, dementia praecox and other forms of insanity. Signs of alteration in the pineal were found especially in children and adolescents with consequent symptoms of hyperpinealism and apinealism. Alteration was found in the size of the testicles associated with ductless gland changes. Hypertrophy of the prostate was often found to be associated with altered mentality, and after complete removal cases were frequently associated with depression or melancholia. Pyorrhea and carious teeth were found to be frequent accompaniment of lunacy in adults; in certain cases signs of chronic intestinal stasis and toxemia were well marked.

It is deduced that many cases of lunacy may be classified according to the toxemia present and the change that it has induced in the ductless glands. The lines on which beneficial treatment may be carried out, based on the above pathology, become obvious; it may be summed up by saying that toxemias, if present, should be removed by medicinal or surgical measures and the glands allowed to involute if they are hypertrophied, or if they are degenerated with deficient secretions these secretions should be supplied. Good results may be expected before cortical brain lesions have taken place.

Annales de Gynécologie et d'Obstétrique, Paris

May-June, XLII, pp. 129-192

16 Puericulture and Obstetrics in France and in Germany. (Puériculture; obstétricie française et obstétricie allemande.) A. Pinard. To be continued.

17 *Spontaneous Protection Against Infection From the Small Pelvis. (La péritonisation spontanée du bassin de la femme. F. Chatillon.

17. **Spontaneous Protection of the Abdominal Cavity Against Infection in the Small Pelvis.**—Chatillon relates that at the gynecologic clinic at Geneva it has long been the routine practice to study conditions found on opening the abdomen and record them, hoping thus to get better insight into Nature's methods of protecting against infection from below. His present article is based on 100 cases. The small intestine is utilized to wall off the pelvis most frequently, next in order of frequency the sigmoid loop, the omentum, bladder, parietal peritoneum, rectum, uterus, pouch of Douglas, cecum and the serosa of the broad ligaments. The small intestine often serves to help wall off a pus pocket or, with a series of loops and adhesions, roofs over the small pelvis. When the diseased uterine adnexa sag down into the pouch of Douglas, they get walled off from the abdominal cavity by adhesions which form between the organs in the small pelvis; otherwise the organs above cooperate, or the organs in the small pelvis and the intestines may all aid in the task.

Archives de Médecine des Enfants, Paris

May, XIX, No. 5, pp. 225-280

18 *Variations in the Glycuronic Acid in the Urine of Infants. (Recherches sur les variations de l'acide glycuronique dans l'urine des atrophiques.) H. Barbier.

19 *Lengthening of the Bones of the Hands and Feet as the Bones Grow Thinner, Accompanied by Severe Pains. (Dolichostenomélie et dolichosténomélalgie.) L. Calvo; (Id.) J. Comby.

June, No. 6, pp. 281-336

20 Treatment of Chronic Urticaria With Sodium Nucleinate. E. Weill.

21 *Defective Development and Debility in Infants. (Des hypotrophies et des cachexies des nourrissons.) P. Nobécourt. Commenced in No. 3.

22 *Interlobar Empyema in Two Infants Cured by Simple Puncture. E. Gorter.

23 *Attacks of Suffocation as Manifestation of Disturbance From Dentition. (Cas de dyspnée orthopnéique symptome d'une poussée dentaire chez un enfant de 15 mois.) V. N. d'Oliveira.

18. **Glycuronic Acid in Infants' Urine.**—Barbier gives the simple quantitative test for glycuronic acid in the urine, and the findings in infants before and after a dose of camphor. The children are grouped according as the findings are zero or near it, those showing a marked increase after the provocative dose of camphor, and those showing no change under the camphor. Weakly infants that are not thriving give the lowest response, but as their condition returns to normal the glycuronic acid content of the urine increases. It is thus a reliable index of what is going on in the body, as is illustrated by a number of charts. One child had an ascending curve until it was given cow's milk, when the glycuronuria abruptly declined. The milk was then stopped and the glycuronuria climbed up again, but dropped anew when cow's milk was resumed, demonstrating that this child is unable to digest cow's milk. It modified at once the glycuronic acid output, and this in itself throws light on the symptoms of intolerance or of intoxication observed under such conditions. As long as the glycuronic acid output is low, we can assume that the liver is not functioning normally, and we must refrain from making demands on it. Camphor seems to have a stimulating action on the liver functioning. Many of the atrophic infants improved materially under daily doses of camphor. The camphor thus serves both diagnostic and therapeutic purposes. Among the five cases cited in detail is that of a 6 weeks' babe who gained only 9 gm. a day for over five months, and the glycuronic acid output was very low. Then it was given camphorated oil daily and in fifty days it averaged 17 gm. a day. When the glycuronic reaction has become normal, the infant may be able to digest cow's milk, for which it has been entirely intolerant hitherto.

19. **Dolichostenomelia.**—In the few cases on record of this extreme lengthening and growing thinner of the bones of the hands and feet, the condition was congenital and caused no pain. It has been called "spider fingers," arachnodactylia. In Calvo's new case the child was apparently normal until the age of 10. Then after a period of severe pains the bones of the fingers and toes began to grow long and spindling. The child suffered from intense pains in the head, arms and

legs, with some swelling of joints but no pains in the joints. The painful regions were cool and cyanotic, with protruding veins. The father had rheumatism, the mother was healthy. The child had measles and whooping cough between 9 and 11. The skin and muscles have not kept pace with the rapid growth of the bones, which is one factor in the pains, but otherwise the pains became attenuated as the bones grew spindling. Radioscopy shows overdevelopment of the epiphyseal cartilages.

21. **Causes of Defective Development and Malnutrition in Infants.**—Nobécourt refers to those cases in which no cause is apparent. Artificial feeding is one of the principal factors, and defective digestion of fats is common. He reviews the various theories that have been advanced and says that none are conclusive. The noxious influence is more harmful the younger the child. The growth function is most readily upset then, and indigestion and malnutrition check the natural development. Each element of the food must be studied to determine which is at fault. By careful study of each individual case we may be able to remove the obstacles to natural development. Left to itself, the child ceases to grow normally, then it stops growing altogether; then the proteic tissues and the fats in the infant's body are consumed. The child consumes itself, and the term of its existence is the limit of this autophagy unless we can arrest it in time.

22. **Interlobar Empyema in Two Infants.**—Both children had had whooping cough during the last few months. One was 15 and one 5 months old, and both had fever and signs of interlobar empyema. The condition seemed extremely grave in each case, but in each recovery was soon complete after a simple puncture in the sixth interspace, releasing green but not fetid pus. Pneumococci were found in one and staphylococci in the other case. The pus was probably walled in by multiple adhesions with no chance for escape, and the pressure was too great to permit absorption. Even if all the pus had not been evacuated at the puncture, the pressure was reduced so that the balance was then easily absorbed.

23. **Dyspnea from Teething.**—The child of 15 months had great difficulty in breathing, increased every time it tried to lie down. D'Oliveira ordered the gums rubbed with an anesthetic, assuming that the dyspnea was a nervous trouble connected with teething. He has encountered a few cases of spasm of the glottis or convulsions in teething infants presenting indications of rachitis, and this dyspnea was evidently of the same nature. He gave the child daily sedative hot baths, with calcium chlorid internally, in addition to the anesthetic for the gums, with promptly favorable results.

Bulletin de l'Académie de Médecine, Paris

June 13, LXXV, No. 24, pp. 697-728

24 *Refusal of Consent by the Wounded to Operations and Diagnostic Measures. (Le droit, pour le blessé, de refuser des interventions ou opérations reconnues nécessaires pour le diagnostic ou le traitement.) J. Grasset.

25 Treatment of Constriction of the Jaws. (Traitement de la constriction des machoires.) L. Imbert and P. Réal.

26 Frequency of Pleuropulmonary Complications With Extensive Wounds of Nerves and Their Influence on the Outcome. (Sur la fréquence des complications pleuro-pulmonaires et leur rôle comme facteur de gravité chez les grands blessés nerveux.) G. Roussy.

27 *Favorable Results With Vaccine Therapy of Typhoid in Serbia. (Récherches sur la bactériothérapie de la fièvre typhoide, au cours de la campagne récente en Serbie.) Petrovitch.

24. **Refusal of Consent to Operations or Diagnostic Measures.**—Grasset relates that in the hospital for nervous affections among the wounded of Region XVI, the patients often decline to permit general anesthesia for diagnostic purposes, and fifty absolutely refused to let lumbar puncture be done, according to the routine procedure for all the patients. Lumbar puncture has been very useful in many cases in the diagnosis of actual lesions; changes in the spinal cord cannot be simulated by the psychoneurotic. One patient refused to allow his dropsy to be tapped, and four refused to let blood be drawn for the Wassermann test. Others refused to permit the application of a plaster cast. Those with actual physical injuries usually accepted these procedures readily. The refusals came mostly from those Grasset calls the psychoneurotics. Their example spreads until there have been actual epidemics of refusals. Some of the men shrink from anything liable to cause pain. Others rejoice in their good luck in getting wounded, as it keeps them away from the firing line, and they do not care to have their recovery hastened and their claim for a pension reduced. He urges the authorities to define the limits of the military physician's authority. (See also Paris Letter, p. 217.)

27. **Vaccine Therapy of Typhoid.**—Petrovitch states that the mortality dropped to 2.7 per cent. under the vaccine therapy as applied in 2,270 cases of typhoid. His impression is decidedly favorable, as no cold baths were given with it. The doses were small, not over from 5,000,000 to 50,000,000 microbes, killed by heat, and these doses were reduced as the patient's strength declined. The dosage should be calculated to avoid any pronounced local or general reaction. A little caffein is given with the second injection usually, to stimulate the pulse.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 10, XLVI, No. 24, pp. 737-768

28 Clinical Study of Symptoms, Diagnosis and Prognosis of Different Varieties of Irregular Pulse. (Unregelmassige Herztatigkeit.) H. Ryser. To be continued.

29 *Disproportionate Growth of the Legs in Length as Tardy Manifestation of Inherited Syphilis. (Ueber die Verlängerung der Unterschenkel bei Syphilis congenita tarda.) R. E. Chable.

29. **Disproportionate Length of the Legs with Congenital Syphilis.**—Chable cites Fournier's statement that he found some syphilitic bone affection in 38.7 per cent. of 212 cases of inherited syphilis in children over 2. The tibia was the bone affected in 46.6 per cent. of the cases. The trouble may be an osteoperiostitis or a gummatous affection. The bone curves and seems to grow thicker, and Chable has encountered two cases in which, after puberty, the bones grew abnormally long, the tibias being 10 cm. longer than the femurs in one case. This excessive growth had begun at the age of 17. In the other case only one leg had grown to excessive length. The distance from the iliac spine to the malleolus was 86 cm. on this side and 83 cm. on the other. The tibia on this side and in one leg in the other patient was of the typical saber shape, with the characteristic thickening and periosteal exostoses. In the older man (22) the bone substance has encroached on the marrow cavity and already shows signs of eburnification at some points. In the other case the bone shows the characteristic softening, the stage of periostitis with hyperostosis being followed by an inflammatory new growth, which likewise encroaches on the marrow cavity. The whole bone is thicker than normal. The pains and functional disturbances from these changes in the leg bone are liable to be misinterpreted, especially as they may not develop until early adult life. Disproportionate length of the leg below the knee should always suggest possible tardy inherited syphilis.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 11, XXXVII, No. 47, pp. 737-752

30 *Fluctuations of the Temperature of the Newly Born. (Sulle oscillazioni della temperatura nei neonati.) R. Costa.

30. **Fluctuations of Temperature of Newly Born.**—Costa relates that in 100 infants, less than a week old, examination of the temperature every four hours showed in a number a briefly transient rise without any apparently appreciable cause. Closer study of the infants, however, disclosed a tendency to slight meteorism as the temperature rose, or there was a slight and fleeting eruption. In one the buccal mucosa was noticed to be unusually red as the temperature rose. These findings show that the briefly transient fever in these cases has a pathologic basis, even if it is merely the lack of coordinate functioning between the organs with an internal secretion. The rise in temperature in this latter group can be regarded as an extension of the limits of physiologic variation.

Policlinico, Rome

June 18, XXIII, No. 25, pp. 773-804

31 *Spasm of the Muscles Used in Respiration; Five Cases. (Contributo alla clinica delle neurosi respiratorie.) A. Fara.

32 Uterine Hemorrhage From Leech Entering Cervix During Bathing. (Metrorragia causata da una sanguisuga penetrata spontaneamente nel collo uterino e simulante un polipo cervicale.) P. Gaifami.

31. **Spasm of the Muscles Involved in Respiration.**—Fara describes five cases of what he calls respiratory neuroses. The clinical aspect at first glance seemed to resemble nervous asthma, but examination showed the margin of the lungs higher than normal, while the stethoscopic findings were negative, and there was no cough. The noisy inspiration and expiration sounded like the panting of a dog. The respiration rate was from 150 to 180 during an attack, but the breathing was excessively shallow—the play of the muscles being reduced to almost nothing, the spasm contracting all the muscles concerned in the breathing act. The diaphragm in the most extreme case seemed to be paralyzed. It persisted immovable in the expiration position while all the other muscles were in the inspiration position. The spasm subsided during sleep and also at intervals during the waking hours. This patient was a mountaineer of 32, apparently robust except for this neurosis. It did not interfere with his work as custodian of a church, but he was unable to do any fatiguing work. Emotional factors seemed to aid in bringing on the attacks. In the intervals respiration was abnormally slow, and during an attack the respiration sometimes returned to the usual rate when the attention was diverted, as in the course of shaving. The four other cases were in soldiers, and the emotional factor was also evident in each.

Brazil Medico, Rio de Janeiro

May 27, XXX, No. 22, pp. 169-176

33 Simplified Technic for the Romanowsky Stain. (Coloração de Romanowsky: Um novo processo para obtel-a.) M. França.

Siglo Medico, Madrid

May 27, LXIII, No. 3,259, pp. 337-352

34 Psychic Impotency. J. De Azua.

35 Immunity and Hypersusceptibility on the Part of the Skin. (Inmunidad e hipersensibilidad de la piel.) E. de Oyarzabal.

Prakticheskiy Vrach, Petrograd

XV, No. 16-17, pp. 146-156

36 Efficacy of French Substitute for Salvarsan. (Nieskolko slov o frantsuzskom preparatie Arsenobenzol-Billon'a.) J. Grünberg.

Russkiy Vrach, Petrograd

XV, No. 15, pp. 337-360

37 *Diagnosis of Incipient Spondylitis. G. I. Turner.

38 Action of Caucasus Benzines on Living Organisms. (O dieistvii Kavkazskikh benzinov na zhivotnii organizm.) N. P. Kravkoff.

39 *War Wounds of the Tongue. A. M. Nikolsky.

40 Therapeutic Value in Cholelithiasis of New Russian Mineral Spring Water. D. A. Burmin.

41 Treatment of Gunshot Fractures of Long Bones. I. A. Tikhomiroff. Concluded.

42 *Case of Congenital Union of Eyelids: Cryptophthalmos. K. G. Turovsky.

No. 16, pp. 361-384

43 Individual Metabolism. (Individualniy obmien.) B. I. Slovtsoff.

44 Assimilation of Proteids by the Animal Body as Viewed by the Polypeptoid Theory of the Proteid Molecule. (Assimiliatsiya bielkovikh tiel zhivotnim organizmon v osvieshtshenii polypeptidnoi teorie stroeniya bielkovoe molekuli.) P. A. Glagoleff.

45 War Wounds of the Eyes and Their Operative Treatment. A. V. Lotin.

46 The Principles of Functional Treatment of Lesions and Diseases of the Extremities. K. T. Vegner.

47 Some Observations Regarding the Action of a Russian Mineral Water. L. B. Kavenokiy.

No. 17, pp. 385-408

48 Organization of Surgical Aid for the Wounded in the Near and Remote Base of the Army. V. A. Oppel.

49 *Neuralgia of Tympanic Branch of Glossopharyngeal Nerve. (Neuralgiya Jacobson'ova nerva.) A. E. Shtsherbak.

50 Mixed Vaccination. (O smieshannoi vaccinatsii.) G. D. Bielonovsky.

51 Organization of Ophthalmologic Aid for Sick and Wounded Soldiers. R. A. Katz.

52 *Treatment of Gunshot Wounds of Long Bones and Large Vessels Complicated With Suppuration. N. A. Krotkina.

No. 18, pp. 409-432

53 *Observations on Typhus Fever. (Iz nabliudenii nad sipnim tiphom.) D. K. Zabolotny.

54 The Rôle of Anerobic Microbes in Complications of Wounds. M. N. M. Aitova and R. A. Brailovskaia.

55 *Mixed Vaccinations Against Typhoid and Cholera. A. I. Bielousova.

56 The Best Method of Preparation of Cholera Vaccine. P. P. Maslakovetz.

57 The Use of Chlorin Tablets in the Army for Disinfection of Drinking Water. X. D. Archipiants.

58 *Regeneration of Bones and Growth of Bone Tissue in the Test Tube. (K voprosu o vozrozhdenii kosti v svyazi s virashtshivaniem in vitro kostnoi tkani.) N. A. Dobrovolskaia.

59 *Value of Ambard's Formula in Estimation of Kidney Functioning. A. M. Zukoff.

60 Quinin Hydriodid in Treatment of Cancer. (Iodistii khinin—Chininum hydrojodicum—pri liechenii rakovikh novoobrazovaniy.) G. A. Garnak.

37. **Diagnosis of Incipient Spondylitis.**—Turner examines the region of the spine by placing the entire hand flat on the suspected area and moving it along the spine. The spinous process of the affected vertebrae can be felt then by the little finger as a slight prominence. The abnormal prominence can be usually confirmed by the tenderness which can be elicited by pressure. He found this method very useful and of decided value in a great many initial cases where the diagnosis was very difficult and doubtful.

39. **War Wounds of the Tongue.**—According to Nikolsky, gunshot wounds of the tongue have occurred only in the proportion of 0.2 per cent. of all other wounds in war time. The tongue wounds are accompanied by severe hemorrhages which may be fatal. The hemorrhage can be checked sometimes only by ligation of the vessel in the wound, or at some distance. Tamponing gives merely temporary relief, and is as a rule hard to carry out. In deep wounds of the tongue the bleeding vessel can be found by enlarging the wound, when the vessel can be more readily ligated. In case this does not succeed, the artery should be ligated at some distance on the neck in Pirogoff's triangle.

42. **Cryptophthalmos.**—Turovsky claims that his case of cryptophthalmos is the fourteenth described in the literature. His patient was a 3-months-old infant. The skin of the brow was almost continuous over both orbits. The palpebral fissures were absent on both eyes. The skin over the ocular region was thin, easily folded, without any inflammatory phenomena. A horizontal small furrow was present in the region corresponding to the palpebral fissure, but there was no trace of cartilages, lids or eyelashes. Below the horizontal furrow the skin was somewhat protruding and covered a round tumor the size of an olive. The brows were faintly developed. No heredity could be established; the two other children are normal. The operation did not reveal the presence of any cornea, though the tumor resembled an eyeball with a thin sclera through which the choroid could be seen. Enucleation was refused and the incision was sewed together. No attempt was made to operate on the other eye.

49. **Neuralgia of Jacobson's Nerve.**—The symptoms of neuralgia of Jacobson's nerve, the tympanic branch of the ninth cerebral nerve (glossopharyngeus) were paroxysmal attacks of acute shooting pains in the depth of the left ear, radiating into the pharynx, lower half of the face and temporal region. The pain was particularly severe in front of the ear, in the left temporal and anterior portion of the parietal region. The teeth, eyes and forehead were normal. During the attacks there was a bitter taste in the mouth, but no disorders of secretion of saliva. Movements of the head or deglutition did not increase the pains. Painful points were found in front of the ear, at the emerging point of the facial nerve, and on the neck between the middle of the lower edge of the jaw and the inner border of the sternocleidomastoid. Shtsherbak thinks that these symptoms confirm the connection of the ninth nerve with the auriculotemporal branch of the fifth nerve. On the other hand, his observation shows that the fibers of the ninth nerve, in human beings, do not conduct secretory impulses for the parotid glands, as has been experimentally established for animals. In the case reported treatment consisted in galvanization of the painful points, diathermia treatment of

the parotids, hypodermic injections of arsenic, supplemented by correction of retroversion of the uterus, parametritis and salpingo-oophoritis. The patient was greatly improved.

52. **Suppurating Wounds of Bones.**—From the experiences with the wounded in a large Petrograd hospital, Krotkina draws the following conclusions: Many gunshot fractures and lesions of the joints heal without any surgical interference. In cases of inflammatory exudates in the joints, Bier's hyperemia treatment must be resorted to, followed if necessary by puncture of the joint. Bier's treatment gives good results, even in pyemic states, provided the local process is limited to the joint. When Bier's treatment is used on the knee joint, the popliteal fossa must be carefully guarded. In case cellulitis sets in, the hyperemia treatment must be preceded by large incisions. If continuous and persistent Bier treatment does not prevent or stop suppuration from the joint, the temperature keeping high, good results are often obtained from partial excision of the joint. In case of malignant edema, the general condition being grave, the earliest possible amputation of the limb is indicated.

53. **Typhus.**—Zabolotny summarizes in brief form his conclusions from extensive experience with typhus. The endemic occurrence of typhus fever is caused by the density of population and unhygienic mode of life. The prodromal stage lasts about twelve days, and the disease starts with a violent rise of temperature up to 103 or 104 during the first twenty-four hours, and it falls by lysis. In seventeen out of 100 patients with a typical clinical picture of typhus fever, there was marked agglutination reaction with typhoid bacilli. In the plasma and the white blood cells of typhus patients there may be found small round bodies, sometimes in pairs. In cultures from the blood there frequently can be found micro-organisms representing a complicating infection, and which may produce specific antibodies in the blood of patients.

55. **Mixed Vaccination Against Typhoid and Cholera.**—Bielousova found in her experiments on rabbits that with mixed vaccination the body's reaction was not more intense than with a separate or single vaccination. In mixed immunization there is formation of antibodies against both typhoid and cholera. Mixed vaccination ought to be done more frequently for practical reasons.

58. **Regeneration of Bone Tissue.**—Dobrovolskaia's experiments with proliferation of bone tissue in the test tube showed that it is possible to obtain an abundant growth in vitro, including the endostium, haversian canals, bone cells, etc. The proliferation of osteogenous elements of the cortical substance of the transplanted bone deprived of periosteum gives rise to formation of osteogenous tissue, but this occurs with greater energy when the transplanted bone is not deprived of its periosteum. The newly formed bone becomes solid only when it grows to blend with the basal bony tissue. The proliferation and further growth of osteogenous elements are facilitated by the presence of a fibrinous blood clot. The practical conclusion is to carefully guard the smallest fragments, in case of a fracture noncomplicated by suppuration, and in case of the latter, to remove them as late as possible in order to give the body a chance to utilize them as construction material.

59. **Ambard's "Uremic Constant."**—According to Zukoff's studies, in cases of pronounced azotemia with high urea content in the blood (above 0.98 per thousand), the Ambard coefficient is high. In less pronounced forms of azotemia there is no distinct parallelism between the coefficient and the amount of urea. The rise of the coefficient indicates renal insufficiency even when the urea content in the blood is normal, and its figure corresponds with the gravity of the clinical symptoms. In mild forms of nephritis or in the initial stages of severe nephritis, Ambard's method permits of determining the secretory function of the kidneys in regard to nitrogen before there is pronounced retention in the blood of nitrogenous substances, and when other methods of examining the renal function still give indefinite results. The technic is quite simple and can be easily carried out not only on hospital but also on office or dispensary patients.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 17, I, No. 25, pp. 2237-2328

61 Development of Refraction of the Human Eye. (De ontwikkeling der refractie van het menschelijk oog.) W. Koster.
62 *The Importance of Statistics in Medicine. (Het goede recht der geneeskundige statistiek.) J. A. Korteweg.
63 *Bradycardia With Pulsus Bigeminus. P. H. Enthoven.
64 Absorption of Roentgen Rays. P. M. van der Haer and H. Verploegh.
65 Mechanism of Swallowing. (Slikbeweging en slikgeruisch.) L. Kaiser.

62. **Importance of Statistics in Medicine.**—Korteweg declares that statistics in medical matters may be of the greatest aid to physicians as they are able to appreciate the attending circumstances. But to the layman they are liable to prove confusing and misleading. When there is a difference of opinion between physicians as to the importance to be ascribed to certain statistics, the verdict should be in favor of the man with the better medical training, wider experience and sound reasoning. As an instance of the possibly misleading import of medical statistics he mentions the figures that apparently prove the heredity of cancer. What is inherited, he says, is the tendency to long life; this brings the individual into the cancer age which others may not reach. Korteweg reviews the experiences of the leading life and accident insurance company, with which he is connected, and cites numerous sets of statistics, discussing the conclusions to be drawn from them. For example, in a certain district, up to 1906 there were twenty-two cases of industrial dislocation of the shoulder with favorable functional outcome, and seven with unfavorable outcome. Since that date the figures have been respectively eighteen favorable and thirty-three unfavorable. This led to a collective investigation which revealed that, in the attempt to improve matters, the parts had been immobilized longer in recent years, with disastrous results.

63. **Bradycardia with Pulsus Bigeminus.**—Enthoven describes two cases in which seemingly healthy young men presented extreme bradycardia with extrasystoles. In the first case the electrocardiogram showed extremely irregular heart action, extrasystoles occurring without any regularity, sometimes alternating and sometimes arbitrarily between the normal groups. Except for an attack of malaria six years before there were no pathologic antecedents. Under the influence of bed rest the pulse became entirely regular, 36 beats to the minute, the sphygmogram showing continuous bigeminus. Not the slightest influence was apparent from subcutaneous injection of 5 or 10 mg. morphin, and 0.5 and 1 mg. atropin caused no disturbance. The electrocardiogram under atropin was like that under bed rest, unless possibly the pulse was a mere trifle accelerated. No effect was evident either from digitalis by the mouth. On the other hand, subcutaneous injection of 1 c.c. of 1 per 1,000 solution of epinephrin arrested the extrasystoles completely and brought the pulse rate up to 62. The sphygmogram seemed quite normal for an hour and a half, the epinephrin having thus transformed a pulsus bigeminus et rarus into a normal pulse of normal frequency. If the bigeminus is due to vagotony, why was there no effect from atropin? Is there hypotony of the vagus? Or is the sympathetic system abnormally excitable? Be this as it may, Enthoven's conclusion in regard to the case is that the young man need not fear that the Damocles' sword of heart disease is hanging over his head, even although the extrasystoles and the bigeminus in the otherwise entirely healthy young man may entail extra work on the heart so that there is not enough reserve force to prevent his panting somewhat with extra physical exertion. In the second case a man of 23 has an uneven and irregular pulse with bradycardia of 40 and irregular extrasystoles eliciting the pulsus bigeminus. The thyroid is enlarged, the right lobe seems to be cystic, and there is a fine tremor. Nothing pathologic can be discovered in the heart, and the thyroid is probably responsible for the extrasystoles, the cardiomotor center being thus rendered overexcitable and the automatism magnified until a spontaneous extrasystole occurs between the normal contractions of the heart. The bradycardia thus induced is a manifestation not of depressed but of increased excitability of the heart.